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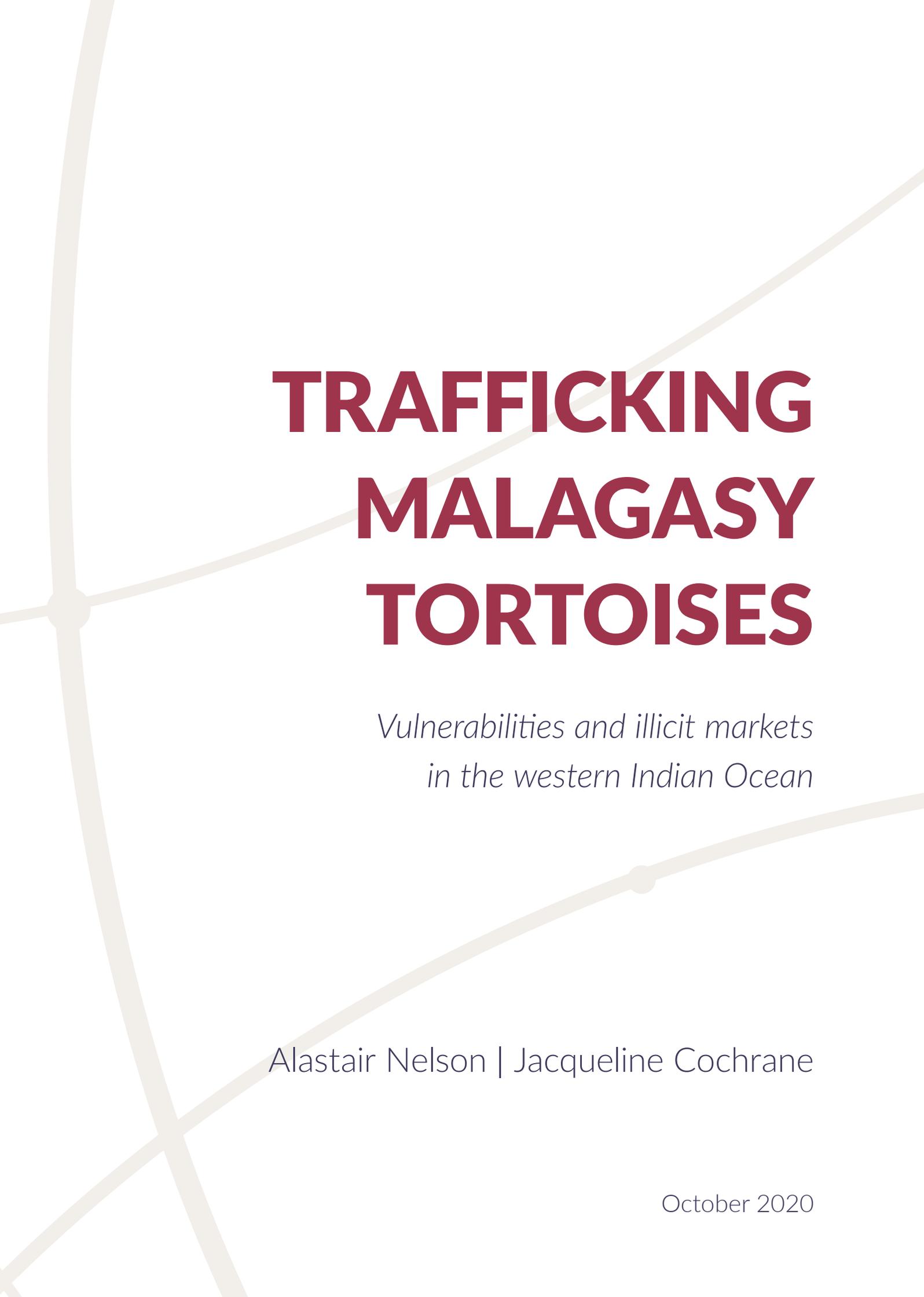
TRAFFICKING MALAGASY TORTOISES

Vulnerabilities and illicit markets
in the western Indian Ocean



ALASTAIR NELSON | JACQUELINE COCHRANE

OCTOBER 2020



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Cover: A radiated tortoise (*Astrochelys radiata*) in the arid zones of South West Madagascar, May 2006 © Alexis Rosenfeld via Getty Images

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CONTENTS

Acronyms	iv
Executive summary	1
Methodology.....	2
The political economy of tortoise trafficking	7
Madagascar: local vulnerabilities exploited.....	6
Comoros: a key regional transit point	11
The tortoises.....	12
Ploughshare tortoises.....	13
Radiated tortoises.....	15
Trafficking routes and seizures.....	16
Case study 1: 2018 – a year of record confiscations in Madagascar	21
Case study 2: trafficking through Comoros.....	22
Case study 3: Zanzibar: a complex governance situation.....	23
Case study 4: a new route via Mozambique?.....	24
Expensive and contentious: the thorny issue of repatriation.....	26
From bushmeat to clickbait	27
Machine learning.....	29
Key findings.....	30
Broader perspectives.....	32
Malagasy solutions for Malagasy problems.....	34
Regional cooperation.....	36
Larger forces at play: COVID-19 and climate change.....	26
Conclusions	39
Recommendations.....	41
Notes.....	43

ACRONYMS

ANAC	National Administration of Conservation Areas, Mozambique
CITES	Convention on International Trade in Endangered Species
DWCT	Durrell Wildlife Conservation Trust
GI-TOC	Global Initiative Against Transnational Organized Crime
UNODC	United Nations Office on Drugs and Crime
WJC	Wildlife Justice Commission

A Malaysian customs official with seized endangered ploughshare and radiated tortoises following a press conference at the Customs Complex in Sepang, May 2017. © Manan Vatsyayana/AFP via Getty Images ▼





EXECUTIVE SUMMARY



Madagascar is one of the world's megadiverse countries, with high rates of biodiversity as well as a high concentration of endemic species,¹ but this immense natural wealth is perennially threatened by the illegal wildlife trade, damage to ecosystems and loss of critical wildlife habitats due to expanding human settlement and activities such as logging and fishing. This threat is compounded by systemic regulatory deficits, while environmental crimes are known to intersect with other forms of transnational organized crime, such as illegal sapphire mining.²

Several Malagasy animals are critically endangered. This includes the two species that form the subject of this study; namely the ploughshare and radiated tortoises. Decades of successful conservation efforts have been destroyed by huge increases in poaching and trafficking of these tortoises over the past 20 years to satisfy the exotic-pet trade. While the trafficking of these reptiles may appear relatively obscure and inconsequential, a closer examination shows that for every animal smuggled, there exists an extensive network of criminal and corrupt actors who actively and consistently undermine gains in rule of law, governance and democracy.

This study is not a quantitative review of the seizure history of endangered Madagascan tortoises. Rather, it explores the trafficking methods and routes used (looking at possible overlaps with other illicit flows), analyzes the political economy of tortoise trafficking and shows what this analysis can tell us about vulnerabilities for the trafficking of other illicit products in general. Although we provide a lot of information here that superficially appears valuable to tortoise collectors or enthusiasts, our work has shown that this group in general already knows all the information we provide, or is connected to a wildlife trader who is engaged in the type of activities we discuss here.

◀ A ploughshare Angonoka tortoise in the wild, Madagascar. The ploughshare is one of the rarest tortoise species in the world. © Dea/C Dani/I Jeske/De Agostini via Getty Images

This report traces the history of tortoise trafficking from Madagascar and identifies the pattern of demand and vulnerability that makes this island state particularly susceptible to illicit flows. In the 1980s and 1990s, demand was driven by specialist collectors, particularly those from Europe, the United States and Japan. The Madagascar authorities did not initially pay much attention to reptile trafficking and may even have played a role in legitimizing the trade, but this started to change in 1996 when 75 ploughshare tortoises were stolen from a secure breeding centre. Since then, the immense value of Madagascar's unique biodiversity has seen a greater investment in protected-area development and management and efforts to tackle environmental crimes. However, the country's socio-political challenges, endemic corruption and porous borders make this a major challenge.

We present four case studies that illuminate complex and unfolding trends in the trafficking of these tortoises, particularly as they reveal policy blind spots and critical vulnerabilities in regard to transnational organized crime, with regional impacts across the Indian Ocean island states. While seizures attract much-deserved attention, the thorny issue of repatriation is often unresolved. This report explores why this has become such a contentious matter – and one that highlights the need for effective collaboration between origin states and sites of confiscation.

The exotic-pet trade is closely linked with social media, and this study takes into account the numerous online dimensions of the trade, considering how cyber-enabled tools can be used in directing efforts to mitigate the deleterious interplay between the illegal wildlife trade and the internet. Using a machine-learning tool called the Cascade, we explore how such mechanisms can be used not only to complement law-enforcement efforts, but also in interventions aimed at reducing the demand for exotic pets.

As these species grow increasingly endangered and approach extinction, this makes them even more rare and arguably more sought-after among hobbyists and reptile enthusiasts. This creates a vicious cycle whereby the illicit trade perversely incentivizes itself, driving up both the demand and market price for these species. But recommendations for how to reverse this pernicious cycle must also acknowledge that the current moment is marked by macro shifts that are both unprecedented and unforeseen.

As the global economy comes under pressure due to the coronavirus pandemic, livelihood prospects contract and traditional donor partners are forced to become more inward-looking and more inward-spending, states such as Madagascar will be disproportionately affected not only by the long-term impact of COVID-19, but also by climate change. Factors such as drought have already been seen to make communities more willing to consider involvement in activities such as the poaching of tortoises.

The pandemic has also forced the world to acknowledge the threat of zoonoses – infectious diseases that can be transmitted from animals to humans through contact, whether as part of smuggling operations or a result of human encroachment. Coupled with accelerating biodiversity loss as a result of habitat transformation, climate change and other human activities, we are facing the very real prospect of another mass extinction. As Mike Barrett of the World Wildlife Fund explains in a 2018 news report: ‘We are sleepwalking towards the edge of a cliff. This is far more than just being about losing the wonders of nature ... This is actually now jeopardising the future of people. Nature is not a “nice to have” – it is our life-support system.’³

Methodology

This report was largely compiled during the coronavirus pandemic, from March to July 2020. As such, it was impossible for the authors to conduct fieldwork themselves as per normal practice. This work therefore draws on previous interviews conducted by one of the authors in Madagascar in 2018, Zanzibar and Comoros in January 2020, remote interviews conducted by both authors in June and July 2020 and interviews conducted in Madagascar and Comoros by local researchers in July 2020.

Interviews were conducted with government officials, including politicians, law-enforcement officers and civil servants; international NGOs; local NGOs; international investigators and specialists in the illegal wildlife trade and an academic who also represented a local NGO and was linked to the Convention on International Trade in Endangered Species (CITES) Scientific Authority in her country.⁴ In total, 26 people were interviewed from Madagascar, Comoros, Mozambique, Zanzibar, mainland Tanzania, Indonesia, Malaysia and China, as well as others from donor countries.

This work has also drawn heavily on unpublished research and analyses conducted by TRAFFIC and the Durrell Wildlife Conservation Trust (DWCT). It has also drawn on direct inputs from the Turtle Conservancy, Turtle Survival Alliance and the Wildlife Justice Commission (WJC).

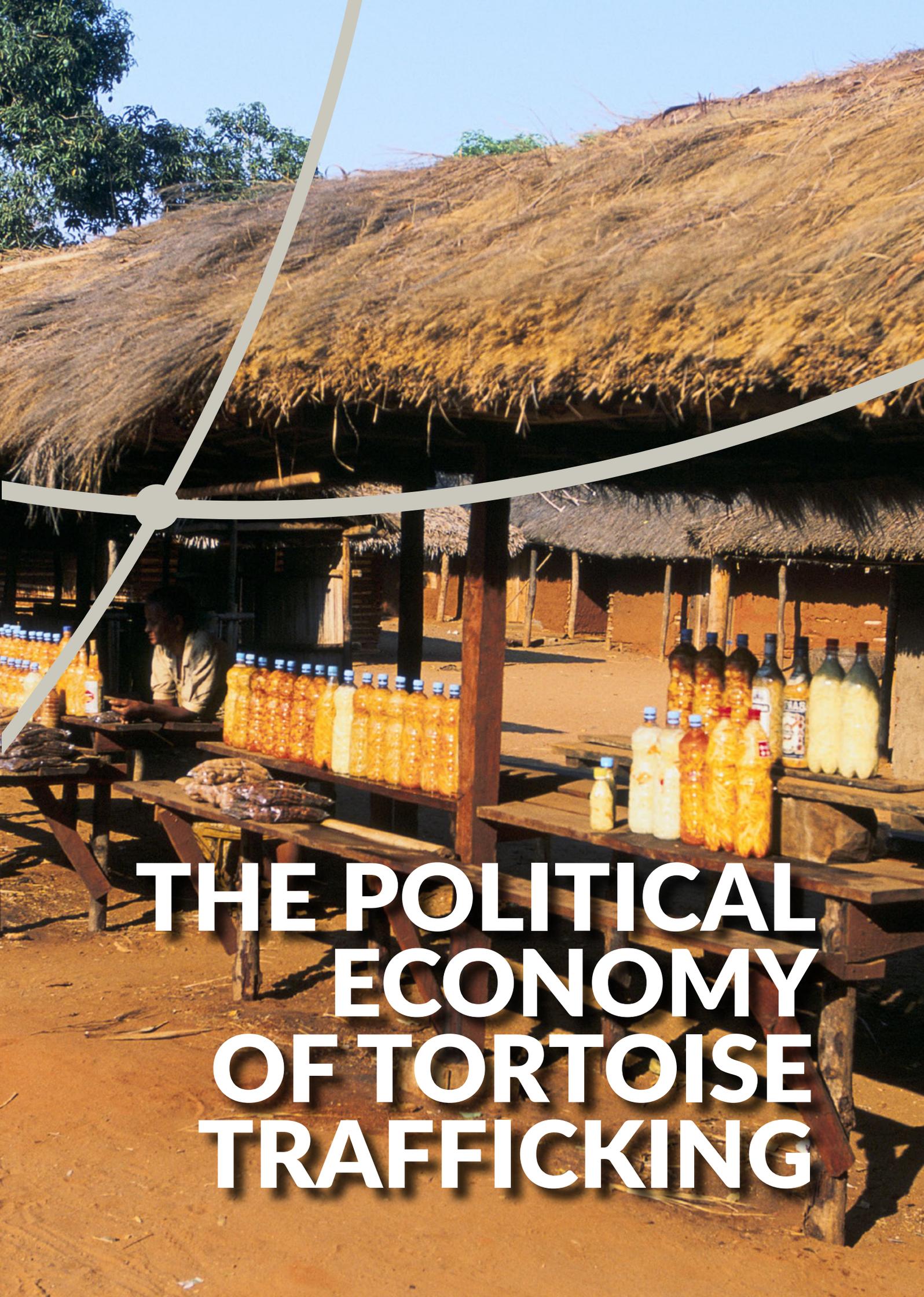
Machine learning

The illicit trade in wildlife is worth billions of dollars,⁵ with exotic pets constituting a substantial portion of that commerce – including the illegal buying and selling of freshwater turtles and tortoises. The internet has been both an enabler and a driver of this trade. As an enabler, cyberspace has created marketplaces and payment methods that allow for illicit transactions to occur with greater anonymity and a significantly lower risk of detection. Simultaneously, the popularization of exotic

animals on social media both fuels and shapes the demand for these animals.⁶ In 2019, for instance, CITES parties voted to ban the trade of two endangered otter species following a social-media trend for keeping these animals as pets.⁷

This study takes into account the numerous online dimensions of the exotic-pet trade, and also considers how cyber-enabled tools can be used in directing efforts to mitigate the deleterious interplay between the illegal wildlife trade and the internet. In partnership with the Centre for Social Media Analysis, the GI-TOC has developed an innovative machine-learning powered tool that searches for text on the indexed web to detect online transactions and other dimensions of the illegal wildlife trade. We used this tool – called the Cascade – to understand whether machine learning is useful not only for revealing instances of the illicit online trade in species such as ploughshare and radiated tortoises, but also to consider its utility in gaining deepened insights into the demand that drives the exotic-pet trade. While the former has important implications for law-enforcement efforts, the latter reveals how online platforms can and should be used to reverse some of the negative trends. If cyber platforms are able to drive the extinction of species, conversely there exists also the potential for online behaviour-change responses to reverse these trends.

For this study, the Cascade predominantly used web search, keyword classification and web crawling to find examples of individuals seeking to buy, sell and discuss ploughshare and radiated tortoises. This work comprised three phases. Firstly, an initial investigation into the market to find ‘seed’ examples from which to extract characteristic words and phrases. Secondly, the system was then run in two further iterations to find more examples online. Thirdly, using web crawlers, the Cascade performed a deeper analysis of a subset of sites to establish the utility of more closely monitoring how individuals interact on these sites in trading and discussing ploughshare and radiated tortoises.



THE POLITICAL ECONOMY OF TORTOISE TRAFFICKING



Madagascar: local vulnerabilities exploited

Tortoise trafficking from Madagascar is driven by a pattern of demand and the country's vulnerability to illicit flows. In the 1980s and 1990s, demand was driven by specialist collectors from all over the world, in particular those from Europe, the US and Japan. The Madagascan authorities did not pay much attention to reptile trafficking and it was fairly easy for collectors to arrange for the smuggling of individual or small lots of animals out of Madagascar. Specialists have suggested that Malagasy ministry officials may have even legitimized this illegal trade by issuing CITES certificates declaring that wild-caught animals were captive-bred.⁸ This started to change in 1996, when 75 ploughshare tortoises were stolen from the Ampijoroa breeding centre. Subsequent information suggests that these were stolen by order of a European collector who had been offering juvenile ploughshare tortoises in advance of this theft. It is believed that they ended up in the Netherlands, Prague and Japan, among other places.⁹

The international attention surrounding the 1996 Ampijoroa theft, coupled with President Marc Ravalomanana's pledge to triple Madagascar's protected area coverage at the fifth International Union for Conservation of Nature World Parks Congress in 2004 began to change how the Malagasy government and its partners viewed Madagascar's biodiversity.¹⁰ Protected areas and the biodiversity they contained started to be seen as opportunities to stimulate local development and to protect both critical ecosystem services and the country's exceptional natural heritage. This led to investment in protected-area development and management, and efforts to tackle environmental crimes.

But Madagascar's pivot did not result in a decline in the trafficking of ploughshare tortoises: 2006 saw a marked increase in international seizures of the animals, both in Madagascar and internationally, with 23 seized that year, compared to just three in 2005.¹¹ The increased demand seems to have come from South East Asia, possibly driven by escalating household income coupled with an interest in exotic pets. To make sense of how this increasing demand was met by increased supply, it is necessary to consider national-level factors in Madagascar, particularly in the context of political change. Seizure data through 2016 shows a peak of 39 tortoises in 2010 – the year after the 2009 coup and subsequent breakdown of rule of law in Madagascar – and a second peak in 2013 (58 tortoises).¹² The period between 2009 and 2013 – from the coup to the first presidential election post-coup – saw

◀ Ampijoroa, Madagascar, attracted international attention after a large number of endangered tortoises were stolen to order from a breeding centre. © Gamma-Rapho via Getty Images

a decline in almost all socio-economic development indicators: the economy stalled, poverty worsened, infrastructure deteriorated and governance problems were exacerbated.¹³

Madagascar is vulnerable to criminality in general, ranking fourth out of 13 southern African countries for criminality in the ENACT Africa Organised Crime Index.¹⁴ It is one of the world's poorest countries, with 75% of the population living on less than US\$1.90 a day.¹⁵ Madagascar scores low in key World Bank governance indicators¹⁶ and has a history of political turmoil. Infrastructure is poor, which places further challenges on economic growth outside major centres, and also means that local government officials are often isolated in remote locations. This can lead to demotivation and creates the conditions for corruption to occur.

Madagascar's immense natural wealth also presents many opportunities to criminals. These opportunities are enabled by systemic corruption and the island's porous borders. Madagascar's remaining forests and wildlife are typically found in remote areas, which in many cases are now protected. These places are inherently difficult to police due to limited resources and geography, and they are never far from the coast – which makes trafficking of

high-value wildlife products from these remote sites to coastal cities easier.

The majority (62%) of Madagascar's population are rural-based,¹⁷ and where tortoises are present, they are an important source of protein. Local people are therefore easily conscripted to poach live tortoises for a cash income, and local officials will often turn a blind eye. Exploiting this situation, tortoise traffickers use intermediaries to approach local communities to arrange for an order of tortoises; the intermediary then makes payment on collection and arranges transport of the tortoises before illegal exportation.¹⁸

Trafficking by air, road and boat

The main trafficking routes are either by air from Ivato airport in Antananarivo, or by boat from Mahajanga in the north-west to Comoros (see Figure 1). Secondary routes include regional flights from smaller airports to Comoros, Mayotte or Réunion. More recently there are reports of radiated tortoises going directly from south-west Madagascar on ships to China, or by fishing boat to Mozambique.

The main trafficking routes for illicit goods in the region are by air or boat. Ivato Airport, shown here, is one of the hubs. © Shutterstock



Tortoises are often wrapped in tape and shipped in suitcases.

The exploitation of Ivato Airport in Antananarivo as the main exit point for tortoise trafficking from Madagascar raises particular concerns regarding corruption and security. The methods used are practised and professional. Tortoises are often wrapped in tape, sometimes with other objects to disguise their shape in scanners, and shipped in suitcases both as personal luggage and freight. 'Mules' are sometimes offered US\$500 to take a return flight to Bangkok with only hand baggage.¹⁹ Baggage check-in is facilitated by airport staff linked to the smugglers – there have been reports of bags bypassing security and being loaded directly onto the aircraft. At the destination, the passage of the mule and their luggage is again often facilitated by airport staff linked to the smugglers.²⁰

'One of the problems we have with tortoises is that they're such a good animal to smuggle. They don't easily die. You just push the head and the legs back in the shell, you wrap tape around it, and then you just stuff them in,' explains Richard Lewis, the Madagascar Programme Director of the DWCT, an international NGO that works to save threatened species from extinction.²¹

Police inspection points on the main roads in Madagascar are ubiquitous. Moving tortoises from the south-west to Antananarivo may require passing up to 20 checkpoints. Similarly, moving tortoises from Baly Bay to Antananarivo may require passing five or more checkpoints. However, there are few reports of seizures at these checkpoints, suggesting that low-level corruption is rife. To sidestep the cost of bribes, some traffickers move radiated tortoises from the south-west by boat to Mahajanga for export to Comoros.²²

Tortoise traffickers in Madagascar

Tortoise traffickers in Madagascar can largely be divided into two groups. The first comprises citizens who use intermediaries to collect tortoises and bring them back to their base (typically Antananarivo), from where they sell the animals to international traffickers, either locally in Madagascar or by making the arrangements for the tortoises to be sent internationally. Examples of this group include Atsila Ratsila, an unemployed 27-year-old from a small market town south of the capital, who had extensive contacts in South East Asia and was caught in a sting operation with radiated tortoises,²³ and a Ministry of Justice clerk who was selling radiated tortoises in a newspaper.²⁴

The second group comprises foreigners who are either based in Madagascar or who regularly travel there – for example, Anson Wong, who was exposed by Al Jazeera.²⁵ Local sources describe a network of Asian nationals who have been living in Madagascar for a long time and run legal businesses, but who are known to run a tortoise-trafficking operation,²⁶ while an international investigator refers to a known Asian wildlife trafficker who regularly travels to Madagascar and has contacts with corrupt senior police officers who facilitate his visits.²⁷ In the one well-documented tortoise-trafficking investigation, Madagascan police officers reported that they had been immediately offered a US\$6 800 bribe by the Madagascan nationals they had placed under arrest, and there was subsequent pressure by a general to release the traffickers.²⁸



Migrants attempt to reach the French island of Mayotte. The region is known for multiple illicit flows along similar routes, including human smuggling. © AFP via Getty Images

Overlaps with other illicit flows

Due to its geographic location, as well as its economic status, Madagascar does not play a major role in transnational illicit-trafficking networks. However, Madagascar is known for rosewood trafficking, wildlife trafficking, trafficking of gemstones and gold, human trafficking for sex tourism, cannabis production and export, and low-level trafficking in other drugs and weapons.²⁹ Previous and ongoing GI-TOC research has identified various illicit flows that overlap with the same routes used by tortoise traffickers: cannabis and radiated tortoises travel by the same roads and through the same checkpoints from the south-west to Antananarivo; tortoises and heroin are both trafficked through airports; and tortoises, cannabis and illegal migrants are smuggled by boat to Comoros. While these products all use the same routes – and likely the same facilitators who arrange transport and pay bribes to corrupt officials – there is no evidence that the same criminal networks are involved in moving both tortoises and other illicit products.



FIGURE 1 Major trafficking routes of ploughshare and radiated tortoises, within Madagascar and across the region.
 SOURCE: Madagascar, ENACT Africa Organised Crime Index, <https://ocindex.net/country/madagascar>.



Moroni, Comoros, is a principal hub in the tortoise-trafficking routes out of Madagascar. © Tony Karumba/AFP via Getty Images

Comoros: a key regional transit point

Comoros has become one of the main transit points for Madagascan tortoises – mostly shipped by boat from Madagascar for onward transport by plane towards demand countries in Asia. Comoros is one of the world's poorest and smallest economies, and scores exceptionally low in key World Bank governance indicators. In 2018, it was ranked at the 3.85th percentile for government effectiveness and the 12th percentile for rule of law.²⁹ Government service delivery is extremely poor. While the three main islands share a language, they differ ethnically and politically. This lack of cohesion has resulted in a history of political turmoil: there have been 20 attempted coups – four successful – since 1975. Its geographic position, as well as its political, economic and social circumstances, have so far negated it being exploited by transnational illicit trafficking networks, but the weakness of the state at all levels means that Comoros is extremely vulnerable to exploitation by organized-crime networks.³⁰

The route between Madagascar and Comoros exploits this deep-rooted vulnerability to organized crime and trafficking, but also draws upon historical and familial ties between north-west Madagascar and Comoros. Mahajanga, the main port in north-west Madagascar

and the point of departure for the regular ferry to Moroni in Comoros, has seen settlement by Muslim traders from South Asia and Comoros from the late 1700s onwards. In 1976 (when a series of anti-Comorian riots broke out in Mahajanga), it was estimated that Comorians made up half the city's population, though 18 000 were subsequently repatriated and many of those who remained took on Madagascan nationality.³¹ Nevertheless, the trading connections and family ties remain to this day. Besides licit trade, the Mahajanga–Comoros route is also known for cannabis smuggling (for the Comoros market), human smuggling (to reach Mayotte via Anjouan) and tortoise trafficking.³² The tortoise trade on this route is ancient, being recorded from the eighth or ninth century, when tortoises from Madagascar were first brought to Comoros as a supply of meat.³³

The tortoise traffickers have customized the Mahajanga–Moroni route to avoid detection. When the commercial boats get close to Moroni, the tortoises are offloaded onto small boats and taken ashore away from the main port, where customs and police inspections occur. Tortoises then leave Moroni either via the main (but relatively small) international airport, or by the weekly ferry to Dar es Salaam in Tanzania.



THE TORTOISES



Both ploughshare and radiated tortoises have been listed on Appendix 1 of CITES (i.e. all international trade is banned) since 1 July 1975, when CITES first entered into force.³⁴ However, 30 years of successful conservation efforts of Madagascar's ploughshare tortoise have been destroyed by the huge increase in poaching and trafficking over the past 20 years to satisfy the exotic-pet trade. Similarly, the past 20 years have seen a marked increase in the illegal trade of Madagascar's radiated tortoise, which coupled with local poaching for consumption, are driving it to extinction in the wild. Both species are now classed as critically endangered by the International Union for Conservation of Nature.

Ploughshare tortoises

Ploughshare tortoises (*Astrochelys yniphora*, also known as the angonoka tortoise) are the rarest tortoises in the world, with the unenviable status of being nearly extinct in the wild. There are approximately 100 wild individuals in Baly Bay National Park in north-west Madagascar.³⁵ They are only known from the area around Baly Bay itself, and there is no evidence from historical or subfossil records to suggest that they were ever found beyond this highly restricted area.³⁶ Since 2006, at least two of the four small sub-populations have almost certainly been poached to extinction.³⁷ They have a long inter-generational breeding time, only reaching sexual maturity at 15–20 years of age.

Aside from this wild population, a further 400 or so ploughshare tortoises are held in approximately 15 professionally managed collections around the world.³⁸ Only one of these is in Madagascar: the others outside Madagascar all acquired their stock from seizures. All except one of these facilities recognize that the confiscated tortoises they manage remain the property of the confiscating government, in most cases having informed the Malagasy government that they are holding these animals until such time as Madagascar is ready to receive them back, if so desired.

◀ For smuggling, tortoises are often wrapped in tape and packed in suitcases carried by mules.

© Herilala Randriamahazo/Turtle Survival Alliance



Ploughshare tortoise (*Astrochelys yniphora*), also known as the Angonoka tortoise.

© Dwi Adhiasto, Wildlife Conservation Society

Only three have possible breeding populations, and only one is known to be breeding. These facilities can be described or characterized as following:

1. A core captive-breeding population of a few hundred animals at Ampijoroa Forest Station, within the tortoise's historic range, which is breeding well.
2. A population of at least 12 adult animals at a reserve in Mauritius, on loan from the government of Madagascar.
3. A population of 23 animals, including breeding-age adults, at the Turtle Conservancy centre in California in the US.
4. A population of approximately 16 animals held at Cheetah Rock, a privately owned facility in Zanzibar (see Case Study 3 on page 23). There has been no communication with the government of Madagascar regarding this population. However, the government of Zanzibar appears to have sanctioned their remaining at Cheetah Rock for the time being.³⁹
5. Other small populations of seized and confiscated animals that have been placed at facilities approved by the national government concerned (US, Japan, Singapore, UAE and various locations in the EU).

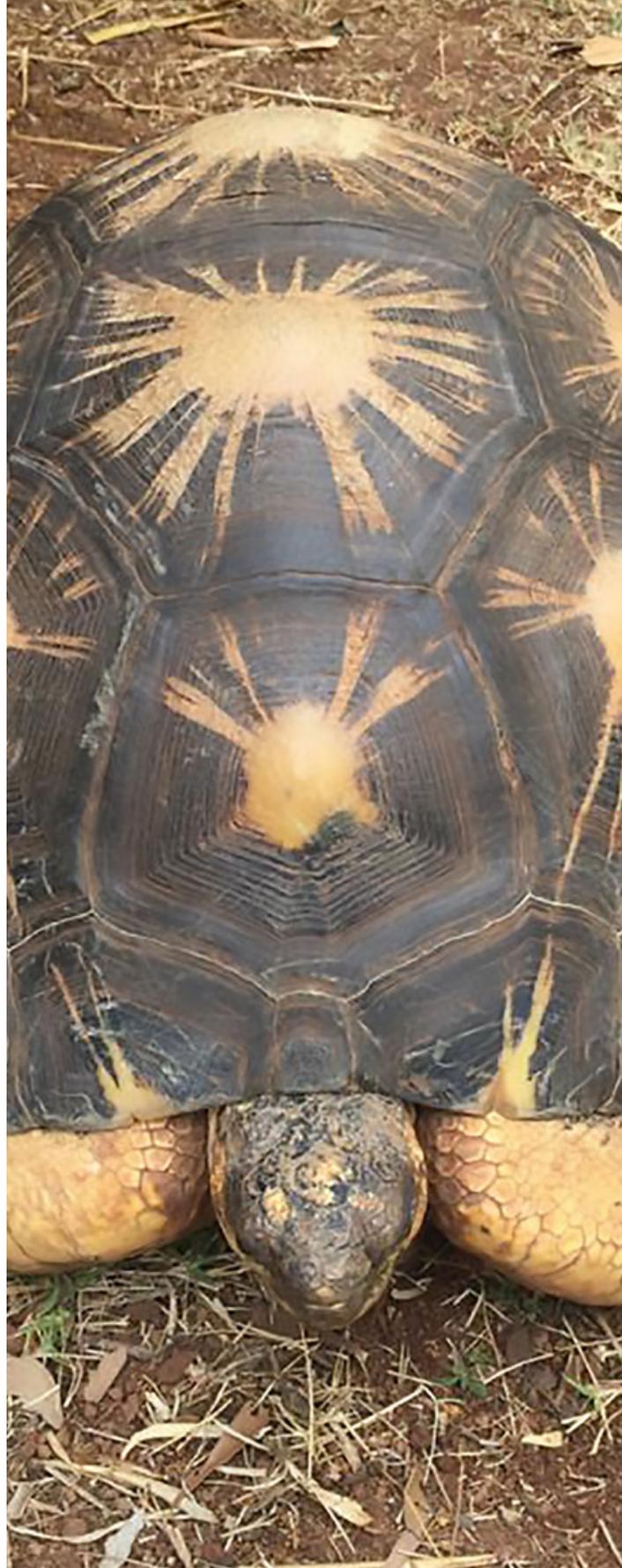
The rarity and distinctive shell pattern of ploughshares make them extremely sought after in the exotic-pet trade. They fetch between US\$5 000 and US\$50 000 each, depending on size, age and shape of the individual, and the wealth of destination country.

Since 1986, the DWCT has focused much of its conservation efforts in Madagascar on the ploughshare tortoise.⁴⁰ Its captive-breeding facility at the Ampijoroa Forest Station is a ray of success in the murky tale of a species plummeting towards extinction, but this comes at a high price. The population of ploughshare tortoises at its Malagasy facility requires constant armed protection, and in a drastic measure, the tortoises' characteristic gold- and ebony-coloured shells are engraved with a prominent serial number and country code to further deter poachers.

Radiated tortoises

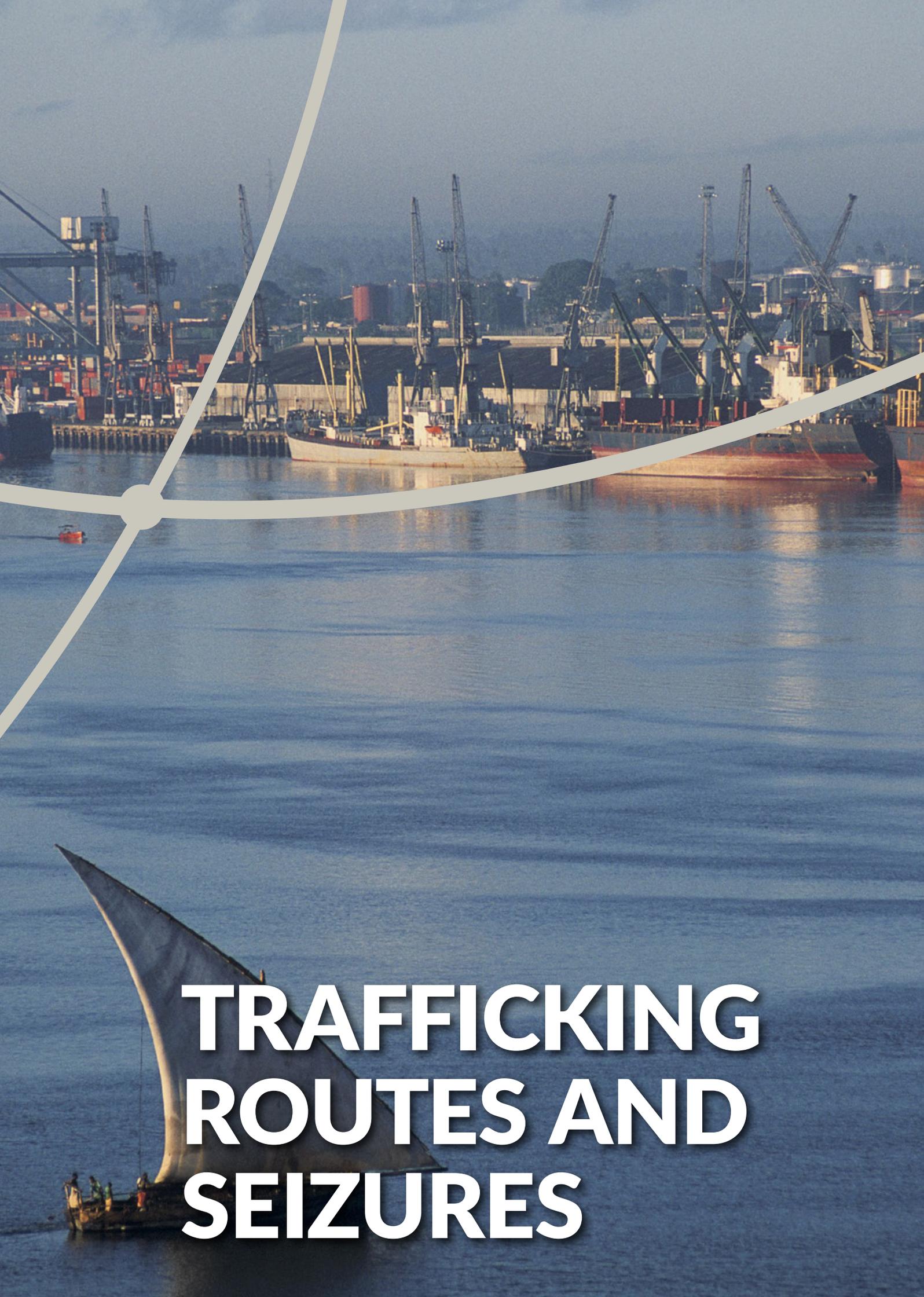
Radiated tortoises (*Astrochelys radiata*) are found in the threatened spiny forests of south-west Madagascar. Once thought to be one of the most abundant tortoise species in the world,⁴¹ with a population in excess of 12 million,⁴² they have declined by 80% over the past 20 years. This loss has been attributed to bushmeat poaching, the collection of live animals for the exotic-pet and traditional-medicine trade and habitat loss. A 2011 local seizure netted 8.2 tons of dried meat, 70 kilograms of fresh meat and 222 live animals – all believed to be destined for local sale and consumption.⁴³ More recently, two local seizures in 2018 recovered more than 17 000 live animals that had been collected for export to international markets in Asia.⁴⁴

They are sought after in the international exotic-pet trade for their distinctive shell pattern, long lifespan and ease of breeding. They sell for between US\$1 000 and US\$3 000 each, but can fetch up to US\$5 000. Only animals exported from Madagascar before the ratification of CITES on 1 July 1975, or offspring from these animals with appropriate CITES permits, can be legally traded internationally. Many countries also have domestic laws criminalizing the ownership of animals illegally exported from Madagascar after 1975.



Radiated tortoise (*Astrochelys radiata*).

© Herilala Randriamahazo/Turtle Survival Alliance



TRAFFICKING ROUTES AND SEIZURES



While some trade exists to serve the older demand centres in Europe and the US, the majority of smuggling routes out of Madagascar often go via a transit country in Africa before reaching a destination country in Asia, most commonly South East Asia. Seizure data mirrors this routing, with some confiscations occurring in southern and East African transit states such as Mozambique, Kenya, Ethiopia and Tanzania, or other island nations such as Réunion and Comoros. Destination-country seizures often take place in Indonesia, Malaysia and Thailand and to a lesser extent the Philippines. Radiated and ploughshare tortoises have been found for sale in online markets in all four of these countries, while physical markets are mostly limited to Thailand and Indonesia. Seizures have also occurred in China, Japan, Taiwan and Singapore.

‘These countries play a role of not just having a consumer base in-country, but more importantly, prolific traders based in these countries are known to supply the [illegal] market in the region,’ said Kanitha Krishnasamy, TRAFFIC Director for South East Asia.

TRAFFIC seizure and trade data, and an unpublished internal report on the illegal international trade of Madagascan tortoises from January 2008 to October 2016,⁴⁵ found that Thailand, Hong Kong and Indonesia were the most common final destinations for ploughshare tortoises. The animals were most commonly seized transiting Kenya, but were also seized transiting Mauritius, Comoros, the UAE and India. For radiated tortoises, China was the primary destination and Malaysia the second-most common destination – typically in flights leaving from Madagascar. Numerous other countries in Africa, the Middle East and Europe feature as transit countries for animals en route to destination countries in Asia.

◀ **Dar es Salaam, Tanzania, is a transit point for illicit goods from the region en route to Asian markets by air.** © Jean-Denis Joubert/Gamma-Rapho via Getty Images

A 2016 CITES report recorded 90 seizures collectively totalling 8 119 ploughshare and radiated tortoises from 2000 to 2015.⁴⁶ Thailand had the highest number of recorded seizures, followed by Madagascar and then Hong Kong. Seizures of radiated tortoises were the most numerous, followed by ploughshare tortoises and spider tortoises. There were 72 seizures of radiated tortoises collectively totalling at least

7 793 individuals, while 18 seizures of ploughshare tortoises (totalling at least 146 animals) were reported. TRAFFIC report most smuggling efforts were by air and generally make use of 'mules' or couriers in a similar way to the smuggling of drugs. Tortoises are generally concealed in personal luggage (either in hand luggage or check-in suitcases), and less frequently under travellers' clothing or as air freight.⁴⁷

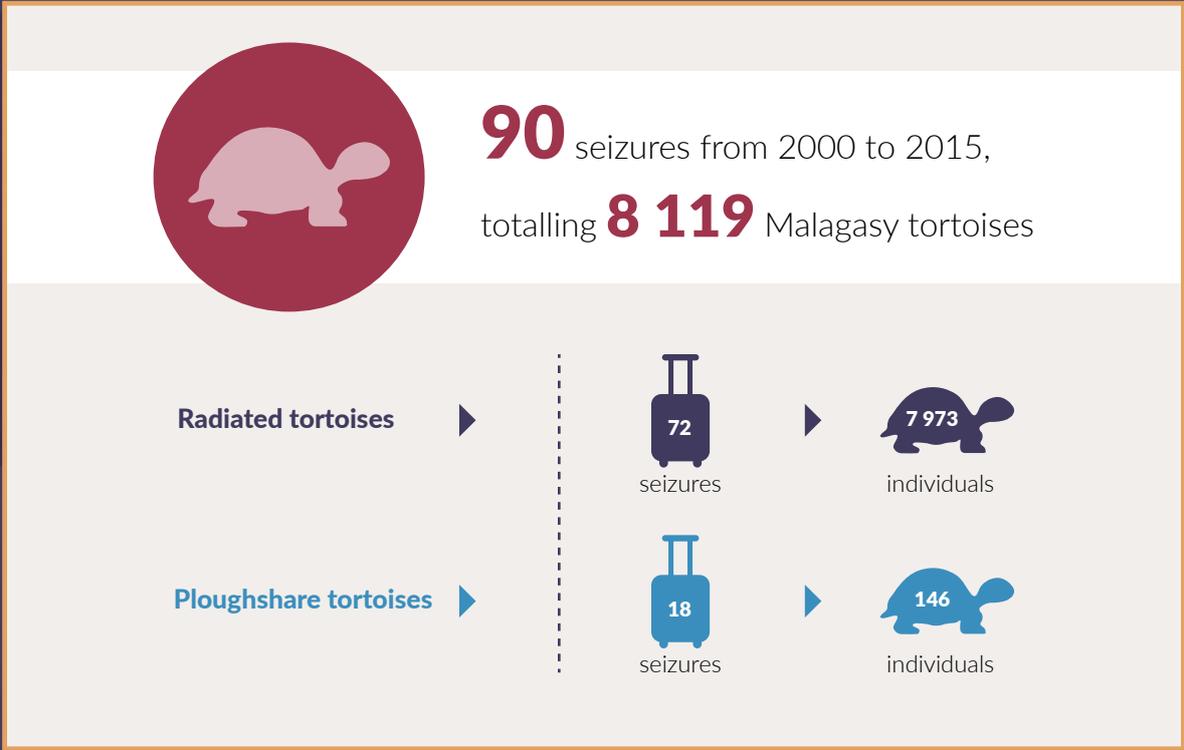


FIGURE 2 Seizures of Malagasy tortoises, 2000–2015. SOURCE: CITES



Three traffickers who were arrested in June 2020 moving 145 radiated tortoises in a pirogue off the south-eastern coast of Madagascar.
© Madagascar Gendarmerie

The TRAFFIC data and an unpublished report revealed that traffickers frequently change routes to reduce the risk of confiscation. For this reason, more indirect transit stops to Asia were observed – for example via Comoros and even via France.⁴⁸

In 2016, the WJC launched Operation Dragon, a two-year investigation into the illegal trade in freshwater turtles and tortoises that culminated in the disruption of eight Asian wildlife-trafficking networks and the arrest of 30 traffickers.⁴⁹ This investigation found radiated tortoises to be the third-most trafficked tortoise species between 2014 and 2018 (measured by number of seizures), and also when measured by the number of individuals (1 546) that were offered to WJC investigators during this operation – for a median price of US\$410 per head (wholesale price).⁵⁰ Ploughshare tortoises were found to be the sixth most-trafficked species by seizure, but only the tenth by the number of individuals (67) that were offered to WJC investigators – for a median price of US\$5 170 per head (wholesale price).

In the United Nations Office on Drugs and Crime (UNODC) World Wildlife Crime Report 2020, based on seizure data for 2007–2017 and information from UNODC fieldwork and interviews, radiated tortoises were found to be the fourth-most seized of all reptiles species.⁵¹ Field data found that between US\$2 and US\$10 is paid per individual at source, and they are finally sold to consumers for between US\$1 000 and US\$2 000 (for a one- to three-year-old animal, depending on the colour).⁵²

‘One of the problems we have with tortoises is that they’re such a good animal to smuggle. They don’t easily die.’

Significant seizures of radiated and ploughshare tortoises (2017–2020)

2017	14 May	26 June	August/September
<p> 325 Ivato International Airport, Madagascar</p> <p> 5 Kuala Lumpur International Airport, Malaysia</p> <p> Abu Dhabi International Airport</p>	<p> 370 Ivato International Airport, Madagascar</p> <p> 2 Kenya</p> <p> Vietnam</p>	<p> 16</p> <p>16 ploughshare tortoises transferred by the Zanzibar government to a privately owned wildlife petting centre for safe-keeping. They were believed to have been seized at the Zanzibar airport.</p>	
<p>1 January 2018</p>	<p>(2017 - date unknown)</p>	<p>17 December</p>	
<p> 76 Toliara</p> <p>76 radiated tortoises seized along with 3.5 kg of cannabis</p>	<p> 116 Mahajanga, Madagascar</p> <p> Port in Moroni</p>	<p> 9 Ivato International Airport, Madagascar</p> <p> Roland Garros Airport, Reunion</p> <p> Guangzhou Baiyun International Airport, China</p>	
<p>10 January</p>	<p>11 January</p>	<p>3 April</p>	
<p> 460 Morondava Beach, Madagascar</p> <p>Tortoises were found in bags on the stranded boat that had washed up on to the beach</p>	<p> 126 Ivato International Airport, Madagascar</p> <p> Kenya</p> <p> Vietnam</p>	<p> 26 Ivato International Airport, Madagascar</p>	
<p>24 October</p>	<p>1 May</p>	<p>10 April</p>	
<p> 7 347 Tortoises seized in Betioky, Madagascar</p>	<p> 8 Kunming, Yunnan Province, China</p>	<p> 10 068 9 888 live and 180 dead radiated tortoises were discovered crammed into a house in Toliara, Madagascar</p>	
<p>6 December</p>	<p>2019</p>	<p>18 July</p>	
<p> 300+ Mahajanga, Madagascar</p> <p> Itsandra, Comoros</p>	<p> 5 Ivato International Airport, Madagascar</p> <p> Bangkok, Thailand</p>	<p> 2 Malaysia</p> <p> Taiwan Taoyuan International Airport</p>	
<p>2019 - date unknown</p>	<p>late 2019</p>	<p>28 September</p>	
<p> 400 400 tortoises were seized at Zanzibar airport. They are being kept at a secure location in Zanzibar</p>	<p> 50 Comoros</p>	<p> 55 Moroni, Comoros</p> <p> 2 Addis Ababa Bole International Airport</p> <p> Hong Kong International Airport</p>	
<p>2020</p>	<p>January</p>	<p>June</p>	<p>9 July</p>
<p> 36 Madagascar</p> <p> Maputo</p>	<p> 708 708 radiated tortoises seized at the Zanzibar airport. Plans are underway for repatriation to Zanzibar</p>	<p> 144 Beheloke commune, Madagascar</p>	

Key	Radiated tortoises	Origin location	Transit location
	Ploughshare tortoises	Discovery location	Destination location

Case study 1: 2018 – a year of record confiscations in Madagascar

The most significant confiscations of radiated tortoises in Madagascar took place in 2018 when, in two separate incidents, more than 17 000 animals were seized. The first occurred on 10 April, when a stench emanating from a privately owned residence in Toliara led police to discover 9 888 live and 180 dead radiated tortoises crammed into sinks and cellars and under stairs.⁵³ A week after the discovery, a further 574 had perished from illness or dehydration.

The Turtle Survival Alliance oversaw the movement of the tortoises to suitable rehabilitation facilities, and coordinated an international effort that saw teams of veterinarians, pathologists and other experts fly to Madagascar to support the animals' rescue. Three arrests were made, and in October 2018, the defendants were sentenced to six years in prison and charged US\$38 800 for damages to the Ministry of the Environment.⁵⁴ The accused lodged an appeal in May 2019, telling the court that they were 'just little fish,' but refused to divulge information on the 'big fish'.⁵⁵ Their sentence remained unchanged.

On 24 October, a second seizure of immense scale occurred when 7 347 radiated tortoises were discovered, also in the greater vicinity of Toliara.⁵⁶ Although these tortoises were found outdoors and were in better health than the April batch, hundreds died after the rescue operation, mostly due to dehydration.

The volume of these seizures was without precedent. In itself, this points to a scale of demand that suggests the tortoises were destined not only for the pet trade,

but also, possibly, for use in medicine or consumption as food. To poach, gather and move thousands of animals requires a highly organized level of trafficking. The scale and location (close to the coast) also suggests that these consignments were more likely to be moved by sea. That the thousands of tortoises had been abandoned is also significant, and could point to a disruption in the operation.

China is a significant market for freshwater tortoises and turtles,⁵⁷ and there is a consensus among Malagasy experts that these two consignments were intended to be smuggled out of the country on a fleet of Chinese fishing vessels that had been active along the south-western coast of Madagascar, following a murky fisheries agreement between Madagascar and a Chinese company headed by an individual listed as untrustworthy by a Chinese court in January 2018.⁵⁸

The presence of Chinese trawlers has evoked tremendous opposition from local fishing communities.⁵⁹ There is also speculation that overlaps may exist, in this context, with the trafficking of sea cucumbers and shark fins. The Malagasy government confiscated six of these trawlers in 2019 for breaching the fisheries agreement.⁶⁰

One of the experts we interviewed believes that the 2018 order for several thousand radiated tortoises remains to be filled.⁶¹ 'The money for the 10 000 would already have been received, and there will be an obligation for 10 000 to be sent,' he explained, adding that this aligns with reports from informant networks in the country's south-western regions. 'It is not yet finished. We are right in the middle of it.'

A wildlife officer holds a smuggled ploughshare tortoise from Madagascar. © Mark Ralston/AFP via Getty Images



Case study 2: Trafficking through Comoros

On 6 December 2018, a police officer in Itsandra, a northern suburb of the Comorian capital, Moroni, but previously a site of one of the original sultanates, was alerted to a suitcase and nine sacks hidden by the sea in the bay.⁶² They contained more than 300 radiated tortoises smuggled from Madagascar.⁶³ Customs officials later arrested four Malagasy and two Comorian men in connection with the trafficked tortoises. Information gleaned post-arrest and from Mahajanga suggests that there may have been more than 1 000 radiated tortoises in this consignment, and the rest had already been taken away by car.⁶⁴ They were brought by commercial boat from Mahajanga to Moroni, but instead of docking at the small commercial port in Moroni, the tortoises were transferred to a small boat (known locally as a *kwassa-kwassa*) and taken to the busy local landing site at Itsandra.

The tortoises were poorly cared for immediately post-seizure; some died and others were stolen. A local NGO, ADEI, took them in and helped facilitate the repatriation of the surviving 222 tortoises to Madagascar, with the support of the Madagascar Ministry of Environment, Ecology and Forests, and the Turtle Survival Alliance.⁶⁵

According to ADEI, this is the third seizure of radiated tortoises that they have been involved with in the past three years. In 2017, 116 radiated tortoises were confiscated by the police at the port in Moroni off a boat from Mahajanga. By the time ADEI became involved, 30 had died or been stolen. The remaining 86 were

eventually repatriated to Madagascar after significant involvement by ADEI. They report that, during this first repatriation, neither the Comorian nor the Madagascar CITES focal points were able to lead the process. The second seizure is described above, while the third occurred in late 2019, when 50 confiscated tortoises were brought to the university. They were in such a poor state that half of them died within 48 hours and the remainder were stolen before the process to repatriate them could be completed.⁶⁶

These are not isolated incidents, and the trafficking through Comoros continues. On 28 September 2019, a foreign national was arrested in Hong Kong with 57 tortoises carefully wrapped in plastic – 55 radiated tortoises and 2 ploughshare tortoises.⁶⁷ On 1 April 2020, he was sentenced to two years in prison.⁶⁸ He had travelled from Moroni airport via Addis Ababa. Officials in Moroni were confident that this was a case of corruption at Moroni airport as all suitcases are scanned and hand searched.⁶⁹

Seizure records available online only show one tortoise-trafficking incident in Comoros, when 1 014 radiated tortoises and one ploughshare tortoise were seized on 31 May 2014 at the international airport in Moroni.⁷⁰ However, as shown above and confirmed by multiple interviewees, Comoros is an important transit point for tortoise trafficking, both by boat from Mahajanga and also by air from Mahajanga and possibly Nosy Be.

Tortoises carried in a suitcase through Comoros. © Masiwa Komor/ RMIFC via Facebook





Zanzibar is increasingly used for the export of live animals from the region to end markets. © Stock photo via Getty Images

Case study 3: Zanzibar: a complex governance situation

Similar to the strong historic and family ties between Comoros and north-west Madagascar, there are also strong ties and trading links between Comoros and Zanzibar. A recent GI-TOC study on illicit flows from Zanzibar found that the airport is regularly used for drug trafficking to Europe using mules, is implicated in possible gold smuggling to Dubai and seems to be increasingly used to legally export live animals for the pet trade, despite mainland Tanzania banning the practice in 2016.⁷¹ Maybe unsurprisingly then, both ploughshare and radiated tortoises have turned up in Zanzibar too, for onward transit to more lucrative markets.

In August–September 2017, 16 ploughshare tortoises were transferred by the Zanzibar government to a privately owned wildlife petting centre on Zanzibar (Cheetah Rock) for safekeeping. They were apparently seized while exiting Zanzibar airport. Thirteen of the 16 animals are adults with distinct markings that indicate they had been released back into the wild from the DWCT's Ampijoroa captive-breeding programme and then poached. They are now on display to tourists, who visit Cheetah Rock for an entrance fee of US\$160 per person to interact with rescued animals. While the government of Madagascar would like the tortoises to be returned, the Zanzibar government is concerned that they may not be safe in the wild in Madagascar, and will allow them to be kept at Cheetah Rock for the time being.⁷²

In 2019, 400 critically endangered radiated tortoises were seized at Zanzibar airport. They are being kept at a secure location in Zanzibar. The Zanzibari authorities have not decided if they will repatriate these tortoises

to Madagascar. As with the ploughshare tortoises, they are concerned that if the animals are returned, they may be stolen again.⁷³

In September 2020, as this report was being finalized, we received information of a seizure of 708 radiated tortoises at Zanzibar airport in July 2020 as COVID-19 lockdowns were easing. Two Chinese citizens were arrested in regard to this seizure. This time, the Government of Tanzania's Ministry of Natural Resources and Tourism has confirmed that they plan to repatriate these tortoises to Madagascar.⁷⁴

The complex governance situation in Zanzibar is a major challenge in addressing trafficking via Zanzibar, as well as the specific issue of how to protect and manage these two confiscated tortoise populations. The United Republic of Tanzania (to give the country its full name) is a union between mainland Tanganyika and the islands of Zanzibar, that came into being on 22 April 1964. However, the union operates with a two-tier system of government, where union matters (e.g. security, international affairs, citizenship, customs)⁷⁵ are handled by the government of the United Republic of Tanzania on the mainland, and non-union matters by the Revolutionary Government of Zanzibar.⁷⁶ International support is a union matter, thus presenting an extra challenge to donor support for Zanzibar. This is immediately apparent when engaging with government departments charged with protecting and managing Zanzibar's environment and related functions – they are extremely under-resourced and undercapacitated compared to mainland Tanzania. In these weak institutions, it is easier for corruption to occur and spread.



The port at Maputo. Reportedly, Asian wildlife traffickers ship tortoises to Mozambique on fishing vessels.

© Veronique Durruty/Gamma-Rapho via Getty Images

Case study 4: A new route via Mozambique?

Mozambique has a reputation as a major wildlife-trafficking hub, with rhino horn passing through its airports and ivory leaving its ports, and there are persistent rumours in Madagascar that a new route for trafficking radiated tortoises is opening up via Mozambique.⁷⁷ The WJC confirmed that its investigations have revealed that Asian wildlife traffickers are speaking of delivering radiated tortoises to Mozambique via fishing vessels from Madagascar.⁷⁸

In early January 2020, wildlife-crime investigators from Mozambique's National Administration of Conservation Areas (ANAC) found 40 radiated tortoises for sale on a local Facebook page in Maputo. The seller was skittish, and when they arrived at the pre-arranged site they found the box of tortoises with only 36 inside – and no seller. (They did find an expat jogger who was trying to help the tortoises and who subsequently had to

spend a few hours explaining that he was not the online trader.) From what the investigators pieced together, the tortoises most likely had arrived by fishing vessel directly from Madagascar, with a plan to smuggle them out of Maputo airport. However, the recent introduction of sniffer dogs at the airport seems to have thwarted this plan, or at least made it risky enough for this trader to abort. ANAC made contact with the Madagascan authorities and were part-way through the repatriation process when COVID-19 lockdowns interrupted plans.⁷⁹

This case highlights the efficacy of the changing approach to combating wildlife crime in Mozambique, led by key authorities (in particular ANAC and the Office of the Attorney-General, together with certain offices or individuals in customs and the police) with support from strategic and trusted partners including the Wildlife Conservation Society, the UNODC, the



Peace Parks Foundation, the World Wildlife Fund, the United States Agency for International Development, the French Development Agency and the World Bank. This has resulted in a decline in rhino poachers entering South Africa from Mozambique,⁸⁰ a decline in wildlife trafficking through northern Mozambique⁸¹ and the stopping of elephant poaching in Niassa Reserve.⁸²

In this case, it meant that local investigators found the online trafficker, engaged and nearly arrested the individual. Measures introduced at the airport increased the perceived risk of trafficking and thwarted this attempt, possibly changing the overall risk perception

of this route. This is not to say that the situation in Mozambique is now rosy. There are still major challenges: the ANAC is woefully understaffed and under-resourced; other national law-enforcement agencies are institutionally weak and hindered by persistent corruption; and the medium-term economic stagnation and governance challenges resulting from the combined effects of internal violent insurrections, the hangover of the 2016 US\$2 billion hidden-debts scandal, and COVID-19 lockdowns will likely further weaken rule of law.



Malaysian customs officials foiled an attempt to smuggle hundreds of endangered tortoises into the country from Madagascar in May 2017. © Manan Vatsayana/AFP via Getty Images

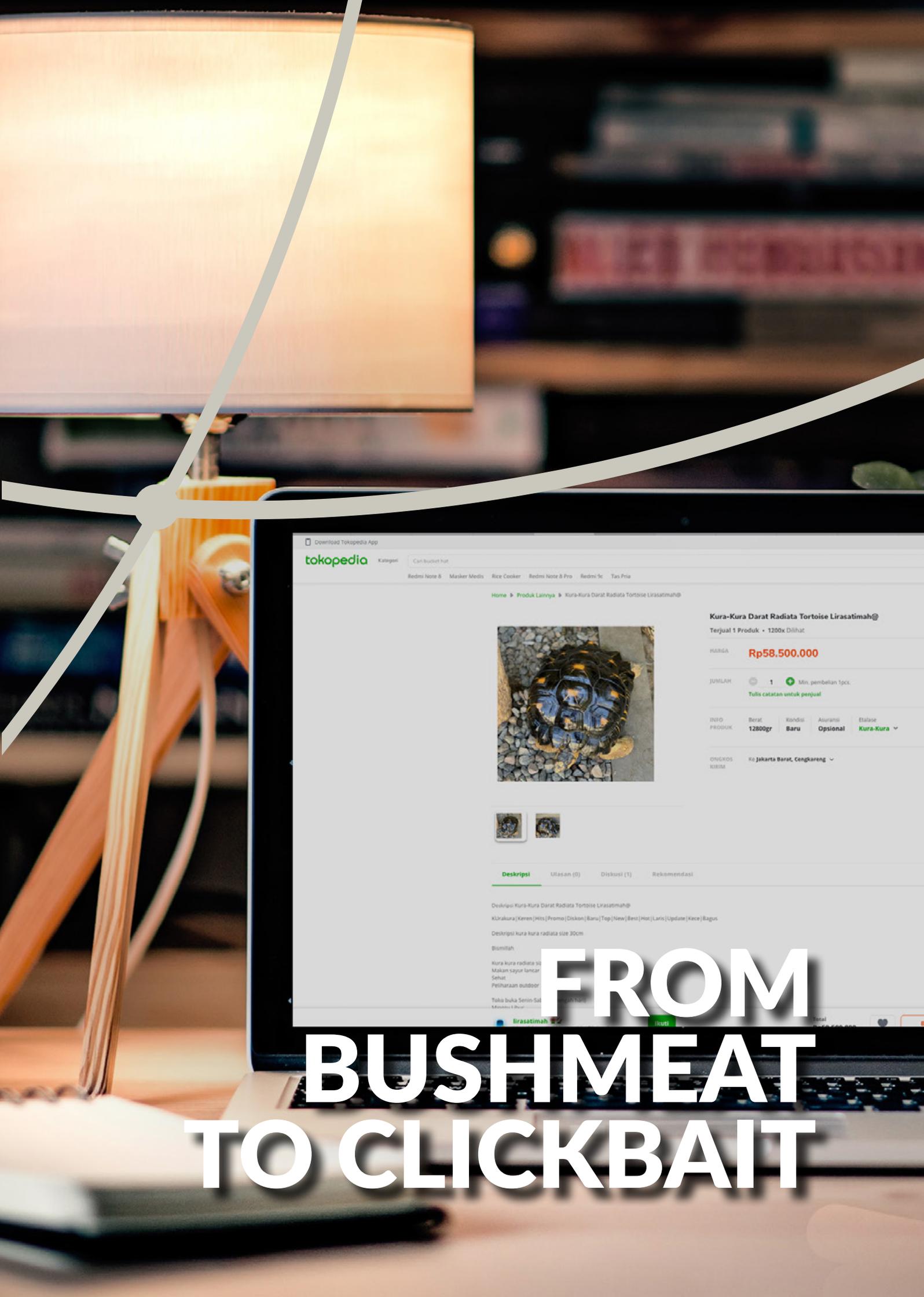
Expensive and contentious: the thorny issue of repatriation

When CITES-listed specimens are confiscated from illegal international trade, the expected course of action under CITES procedures is for the confiscating country to contact the country of origin and ask whether it wants to have the specimens repatriated. If yes, the country of origin is responsible for the shipping bill, while the confiscating country absorbs the costs of seizure, holding the specimens and the prosecution of the perpetrators domestically.⁸³ But the case studies above, and other examples, show that implementing this CITES resolution can be challenging, especially for critically endangered tortoises, with detrimental effects for the animals involved.

Firstly, confiscated tortoises are typically in a state of shock, having been kept in very poor conditions before the seizure. They are often heavily infested with parasites and need special care, otherwise they succumb – as happened with at least one third of the approximately 500 radiated tortoises seized in Comoros between 2017 and 2019, and nearly half of the 54 ploughshare tortoises seized in the largest-ever ploughshare seizure in Bangkok in 2013.⁸⁴ They then need a long recovery time and quarantine before being re-introduced to any other animals. Secondly, the government offices involved (especially in Madagascar, Comoros and Zanzibar) are often under-resourced, with overstretched

staff who lack the capacity for easy international communication. In the case of Tanzania and Zanzibar, the complicated governance structure and challenging internal relationships means that it is currently almost impossible to discuss the status of the seized ploughshare tortoises being held at Cheetah Rock. Thirdly, the value of the seized animals means that they remain targets for theft in the confiscating country by the same groups that were trafficking them originally – as has happened in Comoros and Thailand.⁸⁵ If repatriated, they can also be susceptible to poaching again, unless the situation has changed or they are housed in a secure facility. Finally, the costs of husbandry and care pre-repatriation, and of repatriation itself, can be high and hard to find.

Repatriation works best when there are partners available to support the governments involved. They can help provide veterinary care, support for husbandry, facilitate communications and support the logistics involved. However, other options besides repatriation exist. The confiscating country and an appropriate facility can reach an agreement with the origin country to hold the confiscated animals until such time as it is prepared to take them back. In some cases they may be taken to another country or facility which is already housing individuals of the same species.



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FROM BUSHMEAT TO CLICKBAIT



To understand the drivers of tortoise use and exploitation in Madagascar, it's worth stepping back in history. When humans began settling on Madagascar some 2 300 years ago, most large vertebrate populations slowly became extinct – including two giant tortoise species.⁸⁶ When Arab, and later European, sea vessels began exploring and trading around Madagascar, they took tortoises on board as a supply of meat for their onward journey. In some cases, tortoises were taken from Madagascar to be kept and bred at other supply stations for provisioning,⁸⁷ and in fact the type-specimen for the ploughshare tortoise came from Anjouan in Comoros in 1885.⁸⁸

Bushmeat poaching has historically added pressure on tortoise populations, especially on radiated tortoises.⁸⁹ This practice has continued and even increased in recent times. In July 2020, 144 radiated tortoises were seized in Madagascar. The fact these animals were adults suggests they were intended to be consumed as food by local populations. Tortoises that end up on the black market for the pet trade are typically juvenile animals, as they are easier to smuggle.⁹⁰

While the bushmeat trade of radiated tortoises is significant, the exotic-pet industry is the main driver of the rapid decline in ploughshare tortoises (and to a lesser extent also radiated tortoises). As these species grow increasingly endangered and approach extinction, they become even more sought after among hobbyists and reptile enthusiasts. A vicious cycle exists whereby the illicit trade perversely incentivizes itself, driving up both the demand and market price for these species. As the value of the animals rises, poachers and traffickers go to greater lengths to acquire rare species. As a result, additional strain is placed on law-enforcement, conservation and demand-reduction efforts, which are, with few exceptions, already under-resourced in countries across the supply–transit–destination spectrum of the trade.

The international trade in exotic pets is worth millions of dollars, and there has been ample research to document the links between this trade and the role of the internet and social-media sites in particular.⁹¹ Platforms such as Facebook, Instagram and others both facilitate and drive the exotic-pet market; firstly by providing a relatively traceless channel for sellers and buyers to connect, and secondly by popularizing – and through that, contributing to legitimizing – ownership of these species as pets. Initiatives such as the Coalition to End Wildlife Trafficking Online⁹² aim to hold

social-media sites accountable for their role in the illegal wildlife trade, although with limited success thus far.⁹³

Taking cognizance of the online dimensions of the exotic-pet trade, we considered how cyber-enabled

Machine learning

To explore the utility of cyber-enabled modalities in combating the illegal trafficking of radiated and ploughshare tortoises, we used an innovative machine-learning-powered tool called the Cascade. The tool was developed in partnership with the Centre for Social Media Analysis, and searches for text on the indexed web to detect online transactions and other dimensions of the illegal wildlife trade.

This work comprised three phases. Firstly, we conducted an initial investigation into the market to find 'seed' examples from which to extract characteristic words and phrases. For our initial search, we used terms found in research of similar topics and categorized each based on their usage. This generated four categories: tortoise name, buyer terms, seller terms and social-media platform. This resulted in approximately 5 000 search results, the vast majority of which held little relevance. To solve this issue, a manual investigation was performed which revealed a new set of search phrases

tools can be used in directing efforts to mitigate the deleterious interplay between the illegal wildlife trade and the internet.

and provided additional tortoise names, words and phrases used in e-commerce by both buyers and sellers.

Secondly, the system was run in two further iterations to find more examples online. Relevant content was identified using a hierarchy of keyword classifiers, which subdivided results for easier analysis. These keywords included relevant search terms in multiple languages (English, Malay, Bahasa Indonesian and Mandarin). The categories of classification were Wikipedia-like articles, social-media platforms (such as Facebook and Instagram), tortoise-name mentions and words suggesting sale. For this research we specifically focused on South East Asia, as this region has become the hub of the illegal market for these tortoises over the past two decades.⁹⁴

Thirdly, using web crawlers, the Cascade performed a deeper analysis of a subset of sites to establish the utility of more closely monitoring how individuals

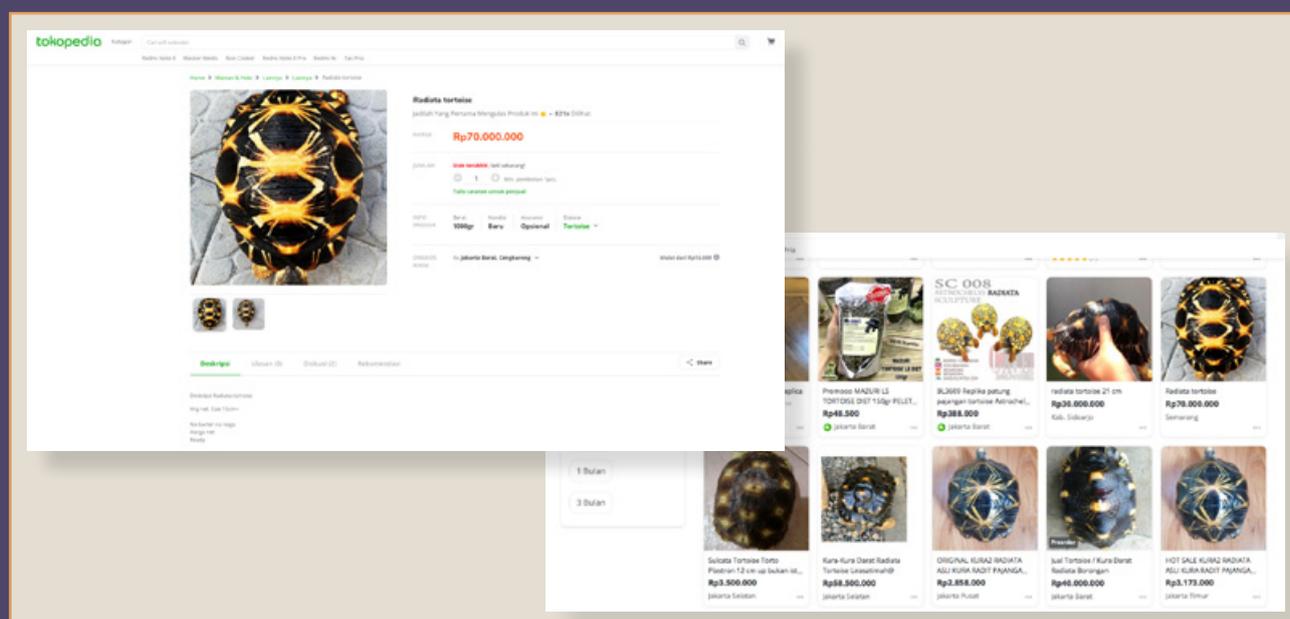


FIGURE 3 Radiated tortoises for sale on South-East Asian e-commerce sites.
SOURCE: Various South-East Asian e-commerce sites.

interact on these sites in trading and discussing ploughshare and radiated tortoises. Over the course of previous phases, and using information provided by domain experts,⁹⁵ five sites were identified as potential e-commerce hubs. This work involved a deeper crawl of these sites to establish two things. The first was whether all instances of a sale and relevant discussion were captured in the search results returned by Bing. (If returned by Bing, this indicates that a manual search would return the same or similar results, pointing to limited application for the Cascade or similar machine-learning tools.) In addition, we aimed to determine whether using the search functionality of a particular site, in combination with a web crawler, was a viable means of more deeply exploring and discovering relevant content.

Key findings

The most important results were twofold. Firstly, of those returns specifically mentioning or showing ploughshare or radiated tortoises, the people involved could be fairly easily classified into one of four groupings (see below). Secondly, using web crawlers returned significantly more results than using standard search engines on sites where both ploughshare and radiated tortoises were known to be displayed and sold (such as seen in the Instagram image on page 31).

The categories used to classify people mentioning ploughshare or radiated tortoises are:

Bragger: someone showing photos of their, or a friend's, ploughshare or radiated tortoise.

Bragger-seller: someone seeming to be using their photos as a platform to advertise to potential buyers.

Enthusiast: a participant in a conversation thread discussing the keeping, breeding or legality of ploughshare and/or radiated tortoises.

Breeder-seller: someone appearing to be a dedicated breeder with one or multiple tortoises to sell.

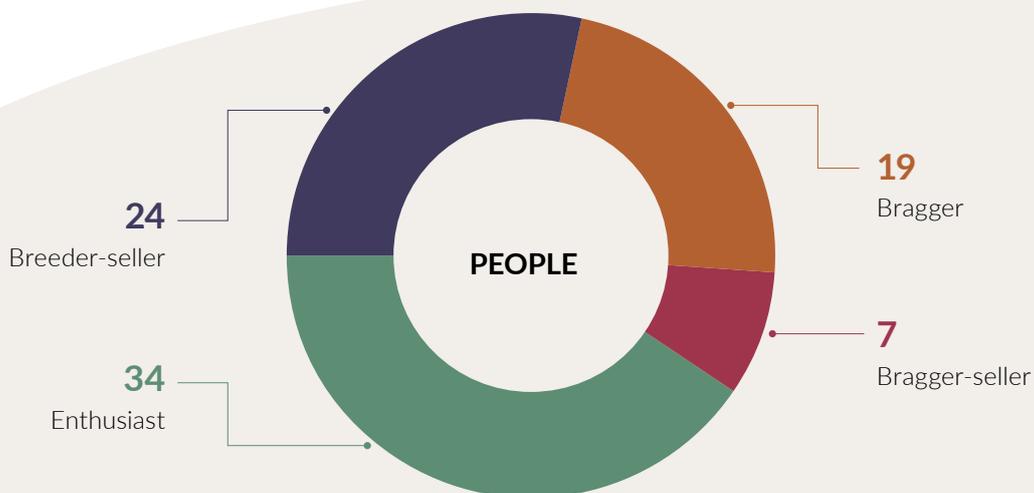


FIGURE 4 Classification of people online with Madagascar tortoises.



Ploughshare tortoises being displayed on Instagram. © #angonoka

For the top two sites in South East Asia, there were 242 tortoise mentions; of these, 84 were positively identified as specifically mentioning either ploughshare or radiated tortoises. Bing only returned 26 hits – in other words, the standard search engine severely underperformed compared to the Cascade. Further, of the 84 positive records, 34 could be classified as enthusiasts, while 31 could be classified as ‘braggers’ or ‘bragger-sellers’. This suggests a significant proportion of people own these tortoises for bragging rights on social media.

Overall, while there were no current cases of active selling of ploughshare tortoises on these sites, there were a number of people selling radiated tortoises (see Figure 2), and at least one instance of a ‘bragger-seller’ of ploughshare tortoises in Indonesia.

There is a significant presence of individuals online discussing and exhibiting ploughshare and radiated tortoises. This took the form of sellers and tortoise farms on Facebook, and the discussion or purchase and breeding of illegal species on forums (in particular, tortoiseforum.org). This indicates that social media is a potentially very fruitful method of characterizing the scope and actors within a market, in particular how sellers obfuscate their items for sale, and the types of people that are willing to break the law to buy items.

It was often hard to establish the legality of breeders and sellers. In many cases, sites would act as middle men to the original breeders and did not explicitly advertise whether the animals were certified or not.

There were at least two instances found where a potential seller camouflaged tortoises for sale by obfuscating relevant seller information with unrelated collections of random words and statements.

Photography plays a significant role both in advertising animals and in bragging about them on social media. This is particularly apparent on sites such as Instagram, where research from the Middle East shows that social-media posts featuring endangered exotic animals (particularly posts from public figures) resulted in an overall positive audience reception towards those exotic pets.⁹⁶ Both ploughshare and radiated tortoises feature prominently on Instagram.

This exercise showed that machine-learning can yield results beyond using standard search engines. However, as with other digital applications and other forms of wildlife crime, machine learning does not present a silver bullet, but rather functions best when used iteratively with a human analyst.

This tool has the capability to inform both law-enforcement, and behaviour-change/demand-reduction responses. However, more work is required to refine the Cascade and similar tools, so that they can deliver useful results that can inform disruption activities. Effective analysis provides the opportunity to understand the extent of the threat posed by the trade, to characterize the part of the market that is active online and to develop, test and implement responses to drive behaviour change around the demand for exotic pets.



BROADER PERSPECTIVES



In the global context, discussions around wildlife trafficking often take place in the realm of conservation or trade, but rarely receive adequate recognition as a form of transnational organized crime. The need for criminal-justice efforts and other mechanisms to reduce criminality in this sphere is evident.

Madagascan tortoise trafficking is also indicative of larger problems. Firstly, in the case of ploughshare tortoises, we have waited until it is almost too late for the species before intervening more decisively. The majority of the remaining animals are in captivity – both legal and illegal (the latter with an unknown number of animals). Only very small portions of the original habitat remain – albeit enough to allow reintroduction if the key threats abate. For both ploughshare and radiated tortoises, recovery in the natural environment will be difficult as the key drivers behind the immediate threats are systemic and complex. Locally, marginalized poor people struggle with limited land availability for agriculture, the impacts of climate change, overfishing by commercial fleets, and weak service delivery and social-development support as a result of weak governance, poor rule of law and systemic corruption. Nationally, traffickers have developed systems to exploit key vulnerabilities – systems that align with illicit flows of drugs and migrants. These include corruption at police checkpoints; corruption and concealment methods to move through Ivato airport; and various marine transport routes, including along the coast to exit points, Comoros, Mozambique and directly to Asia on ships. They follow paths of least resistance and likely use the same facilitators for logistics and corrupt payments as traffickers of other illicit products. The recent attempts to traffic via Mozambique show that traffickers are experimenting and evolving. Internationally, the demand for Madagascan tortoises is being met, and there are established markets and organized criminals in Asia who are able to successfully order and illegally import tortoises.

◀ Scene at a fish market in Zanzibar. Many local communities in the region are impacted by poverty, marginalization and weak governance. © Oleksandr Rupeta/NurPhoto via Getty Images



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Malagasy solutions for Malagasy problems

There is now significant national and international awareness of Madagascan tortoise trafficking. It is on the agenda of bilateral partners in Madagascar,⁹⁷ the major international conservation NGOs working in Madagascar and key local government agencies such as the Ministry of Environment,⁹⁸ the Ministry of Justice⁹⁹ and the Independent Anti-Corruption Bureau.¹⁰⁰ There is also an inter-ministerial committee on mining and forestry which is tasked with monitoring and coordinating responses to environmental degradation. However, while this committee includes representatives from the Ministry of Justice, the Prime Minister's Office and Customs, and is chaired by the Minister of Environment, Ecology and Forestry, it does not include key law-enforcement agencies or the military, and thus lacks the ability to respond effectively to criminal activity.¹⁰¹

This lack of law-enforcement engagement highlights one of the major shortcomings with addressing tortoise trafficking from Madagascar. Madagascan law-enforcement agencies with a mandate to tackle organized crime and address trafficking at exit points are not adequately engaged and vested in tackling tortoise trafficking. This may be because they see this as a purely conservation problem, or because they lack the resources and capacity – or most likely a combination of the two. Further, the law-enforcement agencies tasked with working on trafficking in general are known to compete. This lack of collaboration and information-sharing leads to a fragmented approach which impacts negatively on effective investigations.¹⁰² Recent and ongoing GI-TOC work on the role of Madagascar in the regional heroin and cannabis trades

shows that these shortcomings in addressing organized crime and trafficking also apply to heroin and cannabis trafficking, which are growing in Madagascar.¹⁰³

Wildlife crime units

Experience from elsewhere in Africa shows that targeted engagement of mandated law-enforcement authorities by local NGOs with long-term support and mentoring can have a significant impact on organized wildlife crime. There are examples from multiple countries (e.g. Uganda, Tanzania, Malawi, Zambia and Namibia) where local NGOs have supported the creation and operations of wildlife crime units made up of trusted (and sometimes vetted) law-enforcement officers with a mandate to conduct investigations and then support prosecution. In some cases, these have led to transnational organized-crime networks being dismantled and successfully prosecuted by national authorities in countries previously sanctioned for their role in wildlife trafficking (e.g. Malawi¹⁰⁴ and Uganda¹⁰⁵).

Two related experiences in Madagascar suggest that this model may well be worth implementing. Firstly, the local NGO Alliance Voahary Gasy, with support from outside partners, has had notable success when directly supporting a targeted investigation of a known tortoise trafficker.¹⁰⁶ Secondly, the DWCT supported a training and mentoring exercise for Ivato airport customs officers by British customs officers from Heathrow airport.¹⁰⁷ This was well received and built a short-term sense of responsibility and capability. Notably, the assessment of British customs officers was that this is fixable and that it is not a doomed case.

Corruption is central to organized crime, particularly transnational organized crime where products of some form are trafficked across international borders where they are subject to inspection. Long-term support and mentoring of crime units (either vetted or where trust is built over time) are proven mechanisms to conduct

effective law-enforcement operations in countries with weak rule of law and systemic corruption.¹⁰⁸

In particular, it is worth noting that training interventions alone are unlikely to ever have long-term success in combating organized crime and corruption. No matter how good the training, when officers return to a weak organization which may be poorly led, under-resourced or systemically corrupt, they will be unable to implement their newfound skills and will lose their renewed motivation. In contrast, building organizational capacity through long-term support and mentoring (including training), and changing the culture of an organization in order to improve effectiveness and counter corruption through both motivation and weeding out corrupt individuals, has been shown to be effective.¹⁰⁹

Local challenges

The historical exploitation of tortoises as a source of protein makes it very likely that they are viewed locally as a resource that can be legitimately exploited for food and livelihoods. In remote places where government is weak or absent, and service delivery poor, national laws that criminalize this local exploitation will have flimsy legitimacy. Coupled with the livelihood challenges that rural Malagasy people experience, this will make standard anti-poaching methods based on rule of law alone ineffective. Rather, what is required is long-term engagement with local people to better understand the local context and to look for opportunities to align interests. From the conservation perspective, interests are to protect tortoise populations and their habitats; from a law-enforcement perspective, this is reduced criminality and improved rule of law. What is missing is true understanding – from the ground up and not making assumptions – of how the interests of local communities can be aligned with these two interests.

The need for criminal-justice efforts and other mechanisms to reduce criminality in this economy is evident.

Regional cooperation

Effective regional collaboration between states is crucial in combating transnational organized crime, such as the trafficking of ploughshare and radiated tortoises. Yet Madagascar and other Indian Ocean island nations are prone to a degree of exclusion in this context. To some extent, this is the result of geographic remoteness, but it also reflects a failure among multilateral and bilateral partners, as well as regional policy actors, to take full cognizance of the islands' unique role in and vulnerabilities to transnational organized crime. From a wildlife-crime perspective, efforts to enhance regional cooperation are often directed at boosting instruments such as the Southern African Development Community's Law-Enforcement and Anti-Poaching Strategy. However, these frameworks are only one piece of the puzzle.

While formal bilateral and regional agreements play an important role, effective cooperation requires trust-based relationships between individuals from key law-enforcement agencies in different countries – typically the agencies with the mandates for investigations (e.g. police and customs) and prosecutions. For international cooperating partners and donor agencies, this means that responses to combating wildlife trafficking should also seek to create the platforms to build and grow regional cooperation through trust-based relationships, which are crucial for effective exchanges of information and intelligence.

Larger forces at play: COVID-19 and climate change

COVID-19 and tortoise trafficking

A zoonotic disease, the SARS-CoV-2 novel coronavirus (and resulting pandemic) have highlighted the immense health risks associated with humans coming into contact with wild animals – either as food or other forms of human–animal interaction, including wildlife trafficking. The increasing demand for exotic animals as pets not only contributes to the extinction of animal species, but also presents a tremendous health risk. 'The wildlife-trafficking issue has not encompassed human safety in the past, at least not in the public discussion. But from a law-enforcement perspective, it has always encompassed human safety,' says Ed Newcomer, US Fish and Wildlife Law Enforcement Attaché for southern Africa. 'Bird smuggling, for instance, is a huge risk – way riskier than COVID-19. Right now, bird flu does not easily transmit to humans, but it would just take one slight mutation. We're seeing that COVID-19 has about a 3–5% death rate. For bird flu, the lowest number I've seen is 30%. People smuggle birds all the time, and they do it on commercial aeroplanes in the passenger compartment.'¹¹⁰

Human expansion into wild areas also poses a major set of challenges. As human populations expand exponentially across the globe, people are moving into previously unpopulated natural spaces at an unprecedented rate. This brings an increased and under-acknowledged risk of zoonoses – a very real threat to human health.¹¹¹ Human expansion also has a major effect on animal populations. In Madagascar, habitat loss has been among the drivers responsible for diminishing populations of tortoises¹¹² and other endemic species, such as lemurs.¹¹³ Finally, human expansion into uninhabited areas often results in the increased consumption of wild animals as food, typically as bushmeat.

As the coronavirus pandemic illuminates the risk of zoonoses, it also reveals a series of blind spots in approaches to wildlife crime. One of these is the focus on larger species such as rhino, elephant and large carnivores. This is partly because the poaching of large animals is possibly more easily understood, and these iconic species are better known beyond the areas where they naturally occur. The poaching of large animals arguably also poses more of a direct security risk, as firearms are typically involved. While this focus is justified, the lens with which we view wildlife crime should be widened to focus equally on birds, primates, reptiles and other species which are equally at risk of extinction. The trafficking of such animals also necessitates a degree of highly organized crime, which inherently undermines governance, democracy and the rule of law.

The coronavirus pandemic means that all states have been forced to become more inward-looking to deal with the unique complexities of the public-health impacts in their own backyard. Human populations are coming under greater financial pressure as a result of the pandemic, and organized-crime groups are becoming more opportunistic and possibly

more sophisticated (as has been the case in drug trafficking).¹¹⁴ These groups are no longer just making use of licit channels, but in some cases even attempting to usurp them¹¹⁵ as law-enforcement resources take a knock or are directed elsewhere.

The pandemic may lead to long-term inertia at the state level, as already constrained national agencies inevitably became less operational during the pandemic and are likely to crank back into action in a stop-start manner. Yet, at this time, policymakers and criminal-justice actors need to act swiftly. Traditional donor agencies and development-aid partners will inevitably come under greater pressure, but as things open up there is a need for greater and far more proactive collaboration at the regional level to overcome any lockdown inertia.

One of the positive impacts of the pandemic has been its effect on China's policies and actions towards wildlife markets. In general, China has tightened the trade of all living animals (including livestock), which makes the pet market look very different from what it was before the pandemic. Both physical and online pet markets have been closed down, and there are reports of pets becoming street animals, including exotic pets. Logistics companies have also been targeted to stop the movement of live animals.¹¹⁶ Chinese law-enforcement agencies have been given performance targets on tackling wildlife crime, and there have been reports of in-fighting over good intelligence to effect law-enforcement action.¹¹⁷ In Guangdong province alone, nearly a thousand people have been fined or arrested for wildlife-related crime in the first six months of 2020. Of specific relevance to this study, on 30 July 2020, Chinese authorities reported the seizure of 528 live reptiles in Fujian Province, including ploughshare and radiated tortoises. This was the culmination of a six-month investigation and led to the arrest of six suspects including the suspected group leader.¹¹⁸

Climate change and tortoise trafficking

According to the World Bank, Madagascar is 'one of the African countries most severely affected by climate change impacts and experiences an average of three cyclones per year'.¹¹⁹ These impacts have already been apparent in the poaching and smuggling of species such as tortoises and other wildlife.¹²⁰ 'Radiated tortoises are found mostly in the deep south of Madagascar. In that region, we see the most vulnerable communities; [people who are] living in extreme conditions. They have experienced a long drought period, which has led people to now cooperate with traffickers very easily,' says Zo Maharavo of the Alliance Voahary Gasy.¹²¹

Climate change affects island nations – especially those with large rural populations dependent on subsistence livelihoods – in a disproportionate way. Furthermore, subsistence livelihoods at unsustainable densities place a massive strain on the environment. As ecological systems come under strain, competition over resources inevitably increases. This can fuel migration and become a driver of conflict. As livelihoods prospects contract, people are also far more likely to become involved in wildlife crimes when approached by organized-crime actors.

Comoros is another example where the pressures of expanding human populations and climate change are both highly evident but perennially under-recognized, particularly in the context of vulnerability to organized crime.¹²² Madagascar and Comoros are not traditionally recognized as transnational organized-crime hubs, but their social and political fragility, their economic challenges and their susceptibility to environmental shocks make them especially vulnerable, and thus worthy of engagement to improve governance and rule of law.



CONCLUSIONS



Despite the dire situation for Madagascar's tortoises, it is unlikely that they will be poached to extinction. While local extinctions may occur, the focused (and excellent) species-conservation work of organizations such as the DWCT, the Turtle Conservancy and the Turtle Survival Alliance, together with their partners, will almost certainly result in small breeding populations being protected on-site (and some off-site) in the medium term. At the same time, given Madagascar's biodiversity value, habitat-conservation initiatives in the key national parks have a very high likelihood of being maintained. Thus, even if these tortoises are poached to local extinction, at some point in the future tortoise reintroductions will be able to occur. This is not an ideal solution and no organization is working towards it, but it is important to note that these key organizations have contingency plans in place, and as long as their work is maintained this should protect these species and their habitats.

Meanwhile, as noted throughout this report, tortoise poaching and trafficking highlights larger governance and rule-of-law challenges in Madagascar and along illicit-trafficking routes to market. Tortoise trafficking offers an entry point to identify trafficking routes of multiple illicit products and key sites through which these products flow.

Addressing these problems is not a conservation issue. These are broader problems requiring broader responses focused on improving governance, rule of law and crime prevention, and building resilience to organized crime. Finally, despite the central involvement of NGOs in highlighting these issues and working to find solutions, it is not within the mandate of NGOs to solve these problems. Ultimately, it is only governments, through their mandated agencies, that can solve these problems – albeit with NGO support.

Recommendations

Build effective law-enforcement capacity in Madagascar

It is crucial to build the capacity of small trusted units to investigate crimes and criminals, enabling these units then to build cases in order to disrupt and dismantle the networks and to work with prosecutors to ensure effective prosecution. This is not a short-term training intervention – typically short-term training leaves very little medium-term impact as officers return to stagnant units and are unable to use their newfound motivation and implement their new skills. This is a long-term capacity building and mentoring intervention.

Improve understanding of local drivers and needs

Conservation programmes seeking to change illegal or unmanaged natural-resource use (including poaching) typically rely on three main tools to try and effect behaviour change – law enforcement, sharing information and developing benefit-sharing mechanisms to incentivize stewardship. These tools each only work in quite specific contexts, and local challenges in Madagascar suggest that they are unlikely to work: weak rule of law, high levels of corruption, high rural population densities relative to available productive land, and benefits from conservation are not at a scale to impact each individual in the local communities.

It may be more effective to start conservation-related community-engagement programmes afresh and build them based on deeper understanding of local drivers of poaching and through engagement from the ground up. This means not knowing what the programme would look like at first, but rather being transparent about the conservation goal and the values behind that, and then seeking to understand local values and challenges and drivers of poaching, and look for opportunities where values can be aligned – in doing this, local challenges can be addressed in a way that will have conservation impact. In areas where tortoise poaching is high, it may work to develop these programmes based on three

core approaches: i) employing an emergent programme-design process to address local problems and priorities; ii) developing a collective-action approach by aligning with other local organizations and institutions to try and effect more systemic change; and iii) using a ‘social licence to operate’ framework in order to obtain social approval and support for conservation efforts – this framework helps to clarify how to move from a transactional benefit-sharing relationship through approval, acceptance and finally trust.

Improve regional law-enforcement cooperation

Bring together key people with the mandate to tackle wildlife crime from other countries in the region and hold small, focused regional meetings that centre on sharing information on wildlife crime and wildlife trafficking in particular. Use these events for informal gatherings as well so that these key people get to know each other and build working relationships and trust. The goal is for wildlife-crime investigators to be able to call their counterparts easily and share information when it is relevant, which may help build a case or disrupt a trafficking network.

Tackle corruption in key sites and build resilience

All three of the recommendations above will help to strengthen the rule of law, improve governance and expose corruption. However, resilience to corruption is also required. The recommendations above will also help to achieve this by sharing information and improving transparency, as well as by developing a sense of purpose and recognition in officers working in key law-enforcement units. More needs to be done to build a sense of leadership and purpose in these units, to make people feel valued in doing their jobs, and thus build resilience to corruption.

Formalize the status of the Zanzibar ploughshare tortoise population

It is apparent that neither the government of Zanzibar nor the local operator currently holding this ploughshare tortoise population intend to return the tortoises to Madagascar. There has also been no engagement from Zanzibar with the Malagasy government in order to share information on this seized population. Given that it has a lot of adults, it has the potential to become a breeding population. The status of this population should be agreed between the two governments and the opportunity for it to become a recognised off-site breeding population should be explored. This will entail sharing regular information and records. Without these agreements and recognition, the population is vulnerable to the selling of offspring illegally and cannot be considered to be being managed responsibly and according to a conservation ethos and ethic.

Explore a legal trade in radiated tortoises

The options for a legal trade in radiated tortoises should be explored, although this may not work for a number of reasons. The challenges to this idea include: i) extreme local poverty, which means that people often rely on tortoises as a protein source and also that people will collect them from the wild for very small amounts of money, allowing the illegal market to undercut the legal market; ii) the relative ease of finding wild tortoises makes it possible to launder wild-caught tortoises into any legal trade; and iii) there is potential for elite capture of benefits.

Test disruption of the online trade in Madagascan tortoises

More work needs to be done to understand the role of social-media sites in popularizing, legitimizing and driving the exotic-pet market, particularly for Madagascan tortoises. In-depth analyses that track the historical behaviour of a large sample of exotic-pet owners need to be undertaken to better understand if feedback received on these sites is contributing to the growth in the tortoise trade. Once this is better understood, two disruption efforts need to be tested. Firstly, law-enforcement action should target influential online traders, owners of a large number of tortoises or influencers who are well known – this should broadcast the risk of owning illegal exotic pets. Secondly, a targeted behaviour-change campaign should be enacted that directly engages with tortoise owners online and tries to change the narrative regarding owning these tortoises as pets, introducing concepts such as individual responsibility for our own actions which can lead to biodiversity loss.

NOTES

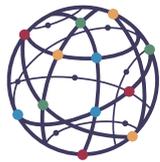
- 1 Convention on Biological Diversity, Madagascar – main details, <https://www.cbd.int/countries/profile/?country=mg>.
- 2 Paul Tullis, How illegal mining is threatening imperiled lemurs, *National Geographic*, 6 March 2019, <https://www.nationalgeographic.com/animals/2019/03/sapphire-mining-fuels-lemur-deaths-in-madagascar/>.
- 3 Damian Carrington, Humanity has wiped out 60% of animal populations since 1970, report finds, *The Guardian*, 30 October 2018, <https://www.theguardian.com/environment/2018/oct/30/humanity-wiped-out-animals-since-1970-major-report-finds>.
- 4 The selection of respondents follows a standard GI-TOC methodological approach which, in keeping with widely held views among criminologists, emphasizes the necessity of researching organized crime without relying excessively on law-enforcement information. A good overview of different approaches can be found in Klaus von Lampe, *Organized Crime: Analyzing Illegal Activities, Criminal Structures and Extra-Legal Governance*. Los Angeles: Sage, 2015, pp 36–55. There is strong consensus among criminologists about the inadequacy of relying only on law-enforcement sources. See Tim Newburn, *Criminology*. London: Routledge, 2007, pp 947–971.
- 5 Wolfgang Lehmacher, Wildlife crime: a \$23 billion trade that's destroying our planet, *World Economic Forum*, 28 September 2016, <https://www.weforum.org/agenda/2016/09/fighting-illegal-wildlife-and-forest-trade>.
- 6 Jani Actman, Exotic pet trade, explained, *National Geographic*, 20 February 2019, <https://www.nationalgeographic.com/animals/reference/exotic-pet-trade/>.
- 7 Countries vote to ban trade in endangered otters coveted as pets, *The Guardian*, 26 August 2019, <https://www.theguardian.com/environment/2019/aug/26/endangered-otters-cites-appendix-i>.
- 8 Donald G. MacNeil, Madagascar reptile theft hits rarest of tortoises, *The New York Times*, 2 July 1996, <https://www.nytimes.com/1996/07/02/science/madagascar-reptile-theft-hits-rarest-of-tortoises.html>.
- 9 Ibid.
- 10 Malika Virah-Sawmy, The Durban vision in practice, In book: *Conservation and Environmental Management in Madagascar*, March 2014, https://www.researchgate.net/publication/261178065_The_Durban_Vision_in_practice_experiences_in_participatory_governance_of_Madagascar%27s_new_protected_areas.
- 11 Angelo R. Mandimbahasina et al., The illegal pet trade is driving Madagascar's ploughshare tortoise to extinction, *Oryx*, 54, 2, <https://www.cambridge.org/core/journals/oryx/article/illegal-pet-trade-is-driving-madagascars-ploughshare-tortoise-to-extinction/C1DA78BBC0307B96B1C3A75C723BA54E>.
- 12 Ibid.
- 13 World Bank, Madagascar: Measuring the impact of the political crisis, 5 June 2013, <https://www.worldbank.org/en/news/feature/2013/06/05/madagascar-measuring-the-impact-of-the-political-crisis>.
- 14 ENACT Africa Organised Crime Index, Madagascar, <https://ocindex.net/country/madagascar>.
- 15 The World Bank in Madagascar, 29 October 2019, <https://www.worldbank.org/en/country/madagascar/overview>.
- 16 In 2018, Madagascar scored in the 11th percentile for government effectiveness and in the 21st percentile for rule of law. Worldwide Governance Indicators, World Bank dataset, <https://info.worldbank.org/governance/wgi/>.
- 17 World Bank, Rural population (% of total population) – Madagascar, <https://data.worldbank.org/indicator/SP.RUR.TOTL.ZS?locations=MG>.
- 18 Interview with Zo Maharavo Soloarivelo, Coordonnateur National, Alliance Voahary Gasy, 3 July 2020, Zoom call.
- 19 Interview with Richard Lewis, Durrell Wildlife Conservation Trust, Antananarivo, 25 June 2020, Zoom call.
- 20 TRAFFIC, unpublished internal report based on seizure and trade data for Malagasy tortoises for the period January 2008 to October 2016; interview with Kanitha Krishnasamy, TRAFFIC Director for South East Asia, 2 July 2020, Zoom call.
- 21 Timeline, Durrell Wildlife Conservation Trust, <https://www.durrell.org/species-index/ploughshare-tortoise/timeline/>.
- 22 Interview with Zo Maharavo Soloarivelo, Coordonnateur National, Alliance Voahary Gasy, 3 July 2020, Zoom call.
- 23 Rowan Moore Gerety, In pursuit of the tortoise traffickers, *Guardian*, 2 February 2018, <https://www.theguardian.com/news/2018/feb/02/in-pursuit-of-the-tortoise-smugglers-madagascar-trafficking-endangered-species>.
- 24 Edward Carver, In Madagascar, revived environmental crime hotline leads to tortoise bust, *Mongabay*, 6 April 2020, <https://news.mongabay.com/2020/04/in-madagascar-revived-environmental-crime-hotline-leads-to-tortoise-bust/>.

- 25 101 East, Return of the Lizard King, Al Jazeera, 21 April 2015, <https://www.aljazeera.com/programmes/101east/2013/11/return-lizard-king-2013111683648328719.html>.
- 26 Interview with local source, Antananarivo, July 2020.
- 27 Interview with international investigator, July 2020.
- 28 USFWS, 7 African Wildlife Trafficking Bust Stories from 2016, USFWS International Affairs – Wildlife Trafficking, <https://www.fws.gov/international/wildlife-trafficking/EAGLE-Week-Recap.html>.
- 29 World Bank, Worldwide Governance Indicators, <http://info.worldbank.org/governance/wgi/#home>.
- 30 Alastair Nelson, A triangle of vulnerability: Changing patterns of illicit trafficking off the Swahili coast, Global Initiative Against Transnational Organized Crime, 15 June 2020, <https://globalinitiative.net/triangle-vulnerability-swahili-coast/>.
- 31 Abdourahim Saïd Bakar, Small Island Systems: A case study of the Comoro Islands, *Comparative Education*, 24, 2, <https://www.jstor.org/stable/3099074?seq=1>.
- 32 Alastair Nelson, A triangle of vulnerability: Changing patterns of illicit trafficking off the Swahili coast, Global Initiative Against Transnational Organized Crime, 15 June 2020, <https://globalinitiative.net/triangle-vulnerability-swahili-coast/>.
- 33 Anthony Cheke, The timing of arrival of humans and their commensal animals on Western Indian Ocean oceanic islands, *Phelsuma*, 18, 2010, https://www.researchgate.net/publication/281815831_The_timing_of_arrival_of_humans_and_their_commensal_animals_on_Western_Indian_Ocean_oceanic_islands.
- 34 Joint statement regarding Madagascar's ploughshare Angonoka tortoise, CITES CoP17 Inf.36, 24 September 2016, <https://cites.org/sites/default/files/eng/cop/17/InfDocs/E-CoP17-Inf-36.pdf>; Radiated tortoise, <https://cites.org/eng/gallery/species/reptile/radiated-tortoise.html>.
- 35 Convention on International Trade in Endangered Species of Wild Fauna and Flora, Joint statement regarding Madagascar's ploughshare/Angonoka tortoise, CITES CoP17 Inf.36, 24 September 2016, <https://cites.org/sites/default/files/eng/cop/17/InfDocs/E-CoP17-Inf-36.pdf>.
- 36 Angelo R. Mandimbihasina et al., The illegal pet trade is driving Madagascar's ploughshare tortoise to extinction, *Oryx*, 54, 2, <https://www.cambridge.org/core/journals/oryx/article/illegal-pet-trade-is-driving-madagascars-ploughshare-tortoise-to-extinction/C1DA78BBC0307B96B1C3A75C723BA54E>.
- 37 Ibid.
- 38 Roopali Raghavan et al., A case study of the ploughshare tortoise *Astrochelys yniphora* and the roles zoos can play in conservation, *TRAFFIC Bulletin*, 27, 2, 2015, https://www.researchgate.net/publication/283296861_A_case_study_of_the_Ploughshare_Tortoise_Astrochelys_yniphora_and_the_role_zoos_can_play_in_conservation; interview with Peter Paul van Dijk, Turtle Conservancy and Global Wildlife Conservation, 3 July 2020, Zoom call.
- 39 Interview with Tamrin Said, Director of CITES office, Ministry of Agriculture, Natural Resources, Livestock and Fisheries Development Zanzibar, Zanzibar City, 17 January 2020.
- 40 David Shukman, Drastic action to save endangered tortoise, BBC, 24 June 2015, <https://www.bbc.com/news/science-environment-33096261>.
- 41 Radiated tortoise: overview, Edge of Existence, <http://www.edgeofexistence.org/species/radiated-tortoise/>.
- 42 International Union for Conservation of Nature, Red List of Threatened Species: Radiated tortoise, <https://www.iucnredlist.org/species/9014/12950491>.
- 43 Ryan C. Walker and Tsilavo H. Rafelarisoa, Distribution of radiated tortoise (*Astrochelys radiata*) bush meat poaching effort, *Chelonian Conservation and Biology*, 11, 2, 223–226.
- 44 John Cannon, Thousands of radiated tortoises seized from traffickers in Madagascar, Mongabay, 31 October 2018, <https://news.mongabay.com/2018/10/thousands-of-radiated-tortoises-seized-from-traffickers-in-madagascar/>.
- 45 TRAFFIC, unpublished internal report based on seizure and trade data for Malagasy tortoises for the period January 2008 to October 2016; interview with Kanitha Krishnasamy, TRAFFIC Director for South East Asia, 2 July 2020, Zoom call.
- 46 Convention on International Trade in Endangered Species of Wild Fauna and Flora, Tortoises and Freshwater Turtles (Testudines spp.), CoP17 Doc. 73, 24 September 2016, <https://cites.org/sites/default/files/eng/cop/17/WorkingDocs/E-CoP17-73.pdf>.
- 47 TRAFFIC, unpublished internal report based on seizure and trade data for Malagasy tortoises for the period January 2008 to October 2016; interview with Kanitha Krishnasamy, TRAFFIC Director for South East Asia, 2 July 2020, Zoom call.
- 48 Ibid.
- 49 Wildlife Justice Commission, Operation Dragon: Revealing new evidence of the scale of corruption and trafficking in the turtle and tortoise trade, December 2018, https://wildlifejustice.org/wp-content/uploads/2019/01/WJC-DragonReport-LR-DEF_update.pdf.
- 50 Ibid.
- 51 United Nations Office on Drugs and Crime, World Wildlife Crime Report 2020, 10 July 2020, <https://www.unodc.org/unodc/en/data-and-analysis/wildlife.html>.
- 52 Ibid.
- 53 Jani Actman, Stench leads to home crawling with stolen tortoises—10,000 of them, *National Geographic*, 20 April 2018, <https://www.nationalgeographic.com/news/2018/04/wildlife-watch-radiated-tortoises-poached-madagascar/>.
- 54 Robin des Bois, On the trail, issue 23, page 25, 5 August 2019, https://www.robindesbois.org/wp-content/uploads/ON_THE_TRAIL_23.pdf.
- 55 Ibid.
- 56 John C. Cannon, Thousands of radiated tortoises seized from traffickers in Madagascar, Mongabay, 31 October 2018, <https://news.mongabay.com/2018/10/thousands-of-radiated-tortoises-seized-from-traffickers-in-madagascar/>.
- 57 Wildlife Justice Commission, Operation Dragon: Revealing new evidence of the scale of corruption and trafficking in the turtle and tortoise trade, December 2018, https://wildlifejustice.org/wp-content/uploads/2019/01/WJC-DragonReport-LR-DEF_update.pdf.
- 58 Edward Carver, Madagascar: Opaque foreign fisheries deals leave empty nets at home, Mongabay, 9 October 2019, <https://news.mongabay.com/2019/10/madagascar-opaque-foreign-fisheries-deals-leave-empty-nets-at-home/>.

- 59 'Chinese take everything': fishy business deal in Madagascar, one of the world's poorest countries, South China Morning Post, 13 December 2018, <https://www.scmp.com/news/world/africa/article/2177790/chinese-take-everything-fishy-business-deal-madagascar-one-worlds>.
- 60 *Bateux de pêche à Toliara: saisie des équipements*, Mada News, 19 March 2019, <https://www.newsmada.com/2019/03/19/bateaux-de-peche-a-toliara-saisie-des-equipements/>
- 61 Interview with a local source in Madagascar.
- 62 Regional Maritime Information Fusion Center, (Ops) Comoros – An impressive number of turtles seized in Itsandra by the police, 14 December 2018, <http://crfimmadagascar.org/en/trafic-darmes-de-drogues-et-contrebande/ops-comores-un-nombre-impressionnant-de-tortues-saisi-a-itsandra-par-la-police/>.
- 63 Interview with Andilia Mohamed Aberemane of the University of the Comoros and local NGO ADEI, Moroni, 13 July 2020.
- 64 Interview with former National Director of Police, Moroni, Comoros, 10 July 2020; interview with Herilala Randriamahazo, Turtle Survival Alliance, Madagascar, 9 July 2020, Zoom call.
- 65 Interview with Andilia Mohamed Aberemane of the University of the Comoros and local NGO ADEI, Moroni, 13 July 2020; interview with Herilala Randriamahazo, Turtle Survival Alliance, Madagascar, 9 July 2020, Zoom call, Turtle Survival Alliance, 19 August 2019, <https://www.facebook.com/TurtleSurvival/posts/the-turtle-survival-alliance-is-excited-to-announce-the-return-of-222-illegally-10156561650391680/>.
- 66 Interview with Andilia Mohamed Aberemane of the University of the Comoros and local NGO ADEI, Moroni, 13 July 2020.
- 67 Government of Hong Kong Special Administrative Region, Hong Kong Customs seizes live turtles suspected to be endangered species (with photo), 29 September 2019, <https://www.info.gov.hk/gia/general/201909/29/P2019092900336.htm>.
- 68 Government of Hong Kong Special Administrative Region, Traveller jailed for smuggling and cruelty to tortoises, 1 April 2020, <https://www.info.gov.hk/gia/general/202004/01/P2020040100583.htm>.
- 69 Interview with Comoros customs officer from Moroni Port, Moroni, 8 July 2020.
- 70 Convention on International Trade in Endangered Species of Wild Fauna and Flora, Tortoises and Freshwater Turtles (*Testudines* spp.), CoP17 Doc.73, 24 September 2016, <https://cites.org/sites/default/files/eng/cop/17/WorkingDocs/E-CoP17-73.pdf>; Dennis Schwarz et. al., Assessment of the international illicit wildlife trade in the critically endangered Malagasy tortoise species *Astrochelys yniphora* and *Astrochelys radiata*, *Salamandra*, 53, 1,
- 71 Alastair Nelson, A triangle of vulnerability: Changing patterns of illicit trafficking off the Swahili coast, Global Initiative Against Transnational Organized Crime, 15 June 2020, <https://globalinitiative.net/triangle-vulnerability-swahili-coast/>.
- 72 Interview with Tamrin Said, Director of CITES office, Ministry of Agriculture, Natural Resources, Livestock and Fisheries Development Zanzibar, Zanzibar City, 17 January 2020.
- 73 Ibid.
- 74 Interview with Theotimos Rwegasira, Wildlife Division, Ministry of Natural Resources and Tourism, 23 September 2020, Zoom call.
- 75 John Challa, Union vs Non union Matters, 9 August 2017, <https://johnchalla.wordpress.com/2017/08/09/union-vs-non-union-matters/>.
- 76 Khalifa Said, Has COVID-19 Sparked Another Revolution in Zanzibar?, The Elephant, 4 July 2020, <https://www.theelephant.info/features/2020/07/04/has-covid-19-sparked-another-revolution-in-zanzibar/>.
- 77 Interview with Herilala Randriamahazo, Turtle Survival Alliance, Madagascar, 9 July 2020, Zoom call.
- 78 Information from Wildlife Justice Commission senior staff member, 13 July 2020, by email.
- 79 Interview with ANAC/SPF Director, 7 July 2020, by WhatsApp.
- 80 Marize de Klerk, South Africa-Mozambique cooperation reduces rhino poaching, VOA, 20 February 2020, <https://www.voanews.com/africa/south-africa-mozambique-cooperation-reduces-rhino-poaching>.
- 81 Alastair Nelson, A triangle of vulnerability: Changing patterns of illicit trafficking off the Swahili coast, Global Initiative Against Transnational Organized Crime, 15 June 2020, <https://globalinitiative.net/triangle-vulnerability-swahili-coast/>.
- 82 Global Initiative Against Transnational Organized Crime, Elephant poaching has dramatically decreased in Mozambique's Niassa National Reserve, once an epicentre of the illegal trade, Risk Bulletin of Illicit Economies in Eastern and Southern Africa, 5 March 2020, <https://globalinitiative.net/esaobs-risk-bulletin-5/>.
- 83 Convention on International Trade in Endangered Species of Wild Fauna and Flora, Disposal of illegally traded and confiscated specimens of CITES-listed species, Resolution conf. 17.8, 4 October 2016, <https://cites.org/sites/default/files/document/E-Res-17-08.pdf>.
- 84 John R Platt, How poachers stole 10% of an entire tortoise species...and what happened next, *Scientific American*, 8 May 2013, <https://blogs.scientificamerican.com/extinction-countdown/poachers-tortoise/>.
- 85 Jani Actman, 78 rare tortoises stolen from breeding center, *National Geographic*, 12 June 2016, <https://www.nationalgeographic.com/news/2016/06/crime-blotter-radiated-ploughshare-tortoises-stolen-thailand-madagascar/>.
- 86 Crystal Gammon, Imported tortoises could replace Madagascar's extinct ones, *Scientific American*, 1 July 2013, <https://www.scientificamerican.com/article/imported-tortoises-could/>.
- 87 Anthony Cheke, The timing of arrival of humans and their commensal animals on Western Indian Ocean oceanic islands, *Phelsuma*, 18, 2010, https://www.researchgate.net/publication/281815831_The_timing_of_arrival_of_humans_and_their_commensal_animals_on_Western_Indian_Ocean_oceanic_islands.
- 88 A. Ross Kiester et al., Conservation of the Angonoka (Ploughshare Tortoise), *Astrochelys yniphora*, Turtles on the Brink in Madagascar: Chelonian Research Monographs, 6, 2013, https://www.researchgate.net/publication/282154761_Conservation_of_the_Angonoka_Ploughshare_Tortoise_Astrochelys_yniphora.

- 89 Ryan C. Walker and Tsilavo H. Rafelarisoa, Distribution of radiated tortoise (*Astrochelys radiata*) bush meat poaching effort, *Chelonian Conservation and Biology*, 11, 2, https://www.researchgate.net/publication/264700173_Distribution_of_Radiated_Tortoise_Astrochelys_radiata_Bush_Meat_Poaching_Effort.
- 90 Edward Carver, After canoe chase, Madagascar authorities seize 144 endangered tortoises, 9 July 2020, Mongabay, <https://news.mongabay.com/2020/07/after-canoe-chase-madagascar-authorities-seize-144-endangered-tortoises/>.
- 91 Siv Rebekka Runhovde, Illegal online trade in reptiles: from Madagascar, Global Initiative Against Transnational Organized Crime, September 2018, <https://globalinitiative.net/wp-content/uploads/2018/09/TGIATOC-ReptileTrade-A4-Web.pdf>.
- 92 End Wildlife Trafficking Online, <https://www.endwildlifetraffickingonline.org/>.
- 93 Daniel Stiles, Holding social media companies accountable for facilitating illegal wildlife trade (commentary), Mongabay, 25 October 2019, <https://news.mongabay.com/2019/10/holding-social-media-companies-accountable-for-facilitating-illegal-wildlife-trade-commentary/>.
- 94 Dennis Schwarz et. al., Assessment of the international illicit wildlife trade in the critically endangered Malagasy tortoise species *Astrochelys yniphora* and *Astrochelys radiata*, *Salamandra*, 53, 1, <http://www.salamandra-journal.com/index.php/home/contents/2017-vol-53/1818-schwarz-d-d-newton-c-ratzimbazafy/file>.
- 95 Dwi Adhasto of Wildlife Conservation Society Indonesia and Kaniitha Krishnasamy of TRAFFIC South East Asia.
- 96 Leonarda B. Spee et. al., Endangered exotic pets on social media in the Middle East: Presence and impact, *Animals*, 9, 8, <https://www.mdpi.com/2076-2615/9/8/480>.
- 97 Interview with Ambassador Phil Boyle, British Embassy in Madagascar, Antananarivo, 19 February 2018; interview with Dan Whyner, Director, Environment and Climate Change Office, USAID Madagascar, Antananarivo, 20 February 2018.
- 98 Interview with Liva Hariniaina Ramiandrarivo, Secretary-General of the Ministry of Environment, Ecology and Forests, Antananarivo, 21 February 2018.
- 99 Interview with Secretary-General of the Ministry of Justice, Antananarivo, 21 February 2018.
- 100 Interview with Jean Louis Andriamifidy, Director-General BIANACO, Antananarivo, 20 February 2018.
- 101 Interview with Liva Hariniaina Ramiandrarivo, Secretary-General of the Ministry of Environment, Ecology and Forests, Antananarivo, 21 February 2018.
- 102 Interview with Secretary-General of the Ministry of Justice, Antananarivo, 21 February 2018.
- 103 Alastair Nelson, A triangle of vulnerability: Changing patterns of illicit trafficking off the Swahili coast, Global Initiative Against Transnational Organized Crime, 15 June 2020, <https://globalinitiative.net/triangle-vulnerability-swahili-coast/>; and upcoming GI-TOC report on smuggling in the Indian Ocean Islands – expected release November 2020.
- 104 Global Initiative Against Transnational Organized Crime, The tide is turning in Malawi's investigation of Transnational wildlife trafficking, Risk Bulletin of Illicit Economies in Eastern and Southern Africa, 4, January–February 2020, <https://globalinitiative.net/esaobs-risk-bulletin-4/>.
- 105 Chris Morris, Moazu Kromah and the case of the West African ivory cartel, International Policy Digest, 24 August 2019, <https://intpolicydigest.org/2019/08/24/moazu-kromah-and-the-case-of-the-west-african-ivory-cartel/>; Global Initiative Against Transnational Organized Crime, Recent high-profile arrests by US and Chinese law-enforcement agencies have dismantled major wildlife-trafficking networks that operated across the continent, Risk Bulletin of Illicit Economies in Eastern and Southern Africa, 3, January 2020, <https://globalinitiative.net/esaobs-risk-bulletin-3/>.
- 106 Interview with Zo Maharavo Soloarivelo, Coordonnateur National, Alliance Voahary Gasy, 3 July 2020, Zoom call; USFWS, 7 African Wildlife Trafficking Bust Stories from 2016, USFWS International Affairs – Wildlife Trafficking, <https://www.fws.gov/international/wildlife-trafficking/EAGLE-Week-Recap.html>.
- 107 Interview with Richard Lewis, Durrell Wildlife Conservation Trust, Antananarivo, 25 June 2020, Zoom call.
- 108 Global Initiative Against Transnational Organized Crime, The tide is turning in Malawi's investigation of Transnational wildlife trafficking, Risk Bulletin of Illicit Economies in Eastern and Southern Africa, 4, January–February 2020, <https://globalinitiative.net/esaobs-risk-bulletin-4/>.
- 109 Global Initiative Against Transnational Organized Crime, Recent high-profile arrests by US and Chinese law-enforcement agencies have dismantled major wildlife-trafficking networks that operated across the continent, Risk Bulletin of Illicit Economies in Eastern and Southern Africa, 3, January 2020, <https://globalinitiative.net/esaobs-risk-bulletin-3/>.
- 110 Global Initiative Against Transnational Organized Crime, COVID-19 reveals costly blind spots in efforts to combat wildlife crime, 3 June 2020, <https://globalinitiative.net/covid-19-blind-spots-wildlife-crime/>.
- 111 Emma Gatten, Human encroachment on animal habitats risks more global pandemics, study says, *Telegraph*, 8 April 2020, <https://www.telegraph.co.uk/news/2020/04/08/human-encroachment-animal-habitats-risks-global-pandemics-study/>.
- 112 Russell L. Burke, Conservation of the world's rarest tortoise, *Conservation Biology*, 4, 2, <https://conbio.onlinelibrary.wiley.com/doi/abs/10.1111/j.1523-1739.1990.tb00100.x>.
- 113 Andrea L. Baden, Madagascar's lemurs face a grim future because of human activity. A solution? Planting trees, *Washington Post*, 4 January 2020, https://www.washingtonpost.com/science/madagascars-lemurs-face-a-grim-future-because-of-human-activity-a-solution-planting-trees/2020/01/03/85c1d8aa-2b5a-11ea-bcd4-24597950008f_story.html.
- 114 Jason Eligh, Crisis and opportunity: Impacts of the coronavirus pandemic on illicit drug market, Global Initiative

- Against Transnational Organized Crime, May 2020, <https://globalinitiative.net/coronavirus-illicit-drug-markets/>.
- 115 Rukshana Parker and Michael McLaggan, Cape gangs in lockdown: Saints or sinners in the shadow of COVID-19?, Global Initiative Against Transnational Organized Crime, 22 April 2020, <https://globalinitiative.net/gangs-in-lockdown-manenberg/>.
- 116 Interview with Chinese illegal wildlife trade and law-enforcement expert, 9 July 2020.
- 117 Ibid.
- 118 Food and Drug Investigation Bureau of the Ministry of Public Security, Fujian cracked a huge illegal sale of wild animals and their products, 30 July 2020, <https://mp.weixin.qq.com/s/CCS-mbsU4X9Tlx0-8MyTw>.
- 119 World Bank, Madagascar: Overview, <https://www.worldbank.org/en/country/madagascar/overview>.
- 120 Malavika Vyawahare, One-two punch of drought, pandemic hits Madagascar's poor and its wildlife, Mongabay, 12 June 2020, <https://news.mongabay.com/2020/06/one-two-punch-of-drought-pandemic-hits-madagascars-poor-and-its-wildlife/>.
- 121 Interview with Zo Maharavo Soloarivelo, Coordonnateur National, Alliance Voahary Gasy, 3 July 2020, Zoom call.
- 122 Alastair Nelson, A triangle of vulnerability: Changing patterns of illicit trafficking off the Swahili coast, Global Initiative Against Transnational Organized Crime, 15 June 2020, <https://globalinitiative.net/triangle-vulnerability-swahili-coast/>.



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